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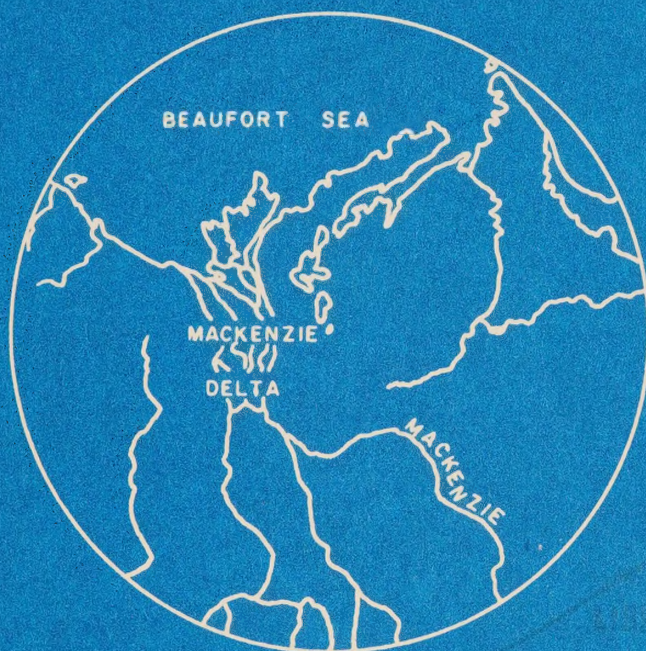




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# THE LOWER MACKENZIE REGION

## an area economic survey



*Canada*

D. BISSETT

INDUSTRIAL DIVISION      NORTHERN ADMINISTRATION BRANCH  
DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT







# THE LOWER MACKENZIE REGION

## AN AREA ECONOMIC SURVEY

### PART I

by

Don Bissett

The opinions expressed in this report are those of the author and not necessarily those of the Department of Indian Affairs and Northern Development.

Industrial Division,  
Department of Indian  
Affairs and Northern  
Development.

Ottawa, October, 1967.







## Preface

This report is one of a series of Area Economic Surveys carried out by the Industrial Division of the Department of Indian Affairs and Northern Development.

These surveys are a continuing part of the Department's efforts to determine the basis for local economic and social progress in the Northwest Territories. Basically the surveys are intended to:

- 1) Assess the renewable resources as to their ability to sustain the local population.
- 2) Determine the degree of exploitation of these resources and the efficiency of their use.
- 3) Investigate and explain the social and economic factors affecting resource utilization.
- 4) Recommend ways and means whereby the standard of living of the local people might be improved.

As the reasons for these surveys are practical, the material presented in the reports is selected for its relevance in this respect; much academic material gathered in the course of the investigation which may have been taken into account in the deliberations is necessarily excluded from these reports. On the other hand, authors have been given wide latitude in their approach and have been encouraged to give consideration to key problems of a theoretical nature and to include such theoretical argument where its inclusion is thought to contribute to the understanding of the material presented and of the practical conclusions drawn.

The reports are published primarily for use within the Department, for distribution to other interested government agencies and for limited distribution to libraries, universities and organizations and individuals actively engaged in northern research, administration or development.

The following reports in this series have been published to date or are in preparation:

<u>A.E.S.R. #</u>	<u>Title</u>	<u>Author</u>
58/1	Ungava Bay	J. Evans *
62/1	Southampton Island	D. Brack
62/2	Tuktoyaktuk-Cape Parry	G. Abrahamson *
62/3	Western Ungava	R. Currie *
63/1	The Copper Eskimos	G. Abrahamson
63/2	Keewatin Mainland	D. Brack and D. McIntosh *
63/3	Yukon Territory Littoral	R. Currie *
65/1	Banks Island	P. Usher
65/2	Northern Foxe Basin	G. Anders
66/1	The Lower Mackenzie Region, Vol. I & II	D. Bissett
66/2	Rae-Lac La Martre	G. Anders
66/3	Frobisher Bay	S. MacBain (Miss)
66/4	East Coast-Baffin Island	
67/1	Lancaster Sound	D. Bissett
67/2	South Coast - Baffin Island	G. Higgins
67/3	South Shore-Gr. Slave Lake	D. Radojicic
67/4	Central Mackenzie	D. Villiers (Miss)

\* Out of print at time of publication.



## INTRODUCTION

"The Lower Mackenzie Region" Area Economic Survey is an attempt to examine the lower Mackenzie River area and its diversity of physical and human landscapes.

The Mackenzie Delta proper forms a core zone within a larger region. While recent investigators have tended to view the delta proper as being a complete unit for an investigation of human activities, the zone of human occupation in terms of resource utilization extends well beyond the delta into the Arctic coastal areas, the plateau and mountain country to the west and the Mackenzie Plain.

Briefly, the area covered in the survey includes the settlements of Inuvik, Aklavik, Fort McPherson, Arctic Red River, Reindeer Station and Tuktoyaktuk and their general resource areas. Some arguments might be advanced against the limits set on this study. However, a larger unit would become unwieldy in terms of field work and planning.

There is a diversity of economic activities ranging from the activities of resource harvesting, hunting, fishing and trapping to small scale industries, fur garment projects, a tannery, a lumbering and sawmilling project and the reindeer project. The present stage of development indicates the continuing need for innovations and experimentation with the resource base. Increasing centralization of population in the settlements poses a problem in economic development based on resource harvesting.

In terms of economic planning, the lower Mackenzie region represents a strategic zone in north-western Canada. The various resources and a large resident population pose a challenge for developers seeking to develop a viable economy. Despite the recent trends towards centralization, the renewable resource base remains of primary importance to large sectors of the resident population.

The present status of the economy is unsatisfactory in terms of productivity, the input of monies for development and the outflow of products. Marketing systems are unsatisfactory or ill-defined. A program of integrated resource use and the establishment of marketing systems appear to be absolute requirements. Continuing advancements in education, and a replacement of non-residents with residents in positions of increasing responsibility will partly solve the problem of increasing population. For the interim period continuous efforts should be made to encourage out-migration of younger age groups.

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The area is complex both in terms of physical and human landscapes. While the term Metis has been used throughout the report to distinguish resident groups not strictly belonging to Indian, Eskimo or white groups in the lower Mackenzie region, it is simply used as a device for identification rather than an attempt to stratify groups. Non-permanent resident pertains to persons employed by government and other agencies and having little apparent intention of becoming permanent residents.



ACKNOWLEDGEMENTS

Among the persons who so generously contributed of their time and advice were Mr. S. Hancock, Regional Administrator, Department of Indian Affairs and Northern Development, Mr. R. Hill who so generously made available the facilities of the Inuvik Research Station, Mr. Frank Bailey, Game Office, Aklavik, Mr. Les Wilderspin, Area Administrator, Department of Indian Affairs and Northern Development, Fort McPherson, Miss Merle Pottinger, Northern Health Services, Inuvik, Miss Naomi Griffin, Technical Officer, Inuvik, Department of Indian Affairs and Northern Development, Mr. Henry Mann, Game Office, Fort Smith, Mr. Max Budgell and Mr. Graham Douglas, Industrial Division, Department of Indian Affairs and Northern Development, Ottawa.

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Special mention must be made of Mr. Bruce Watson, Mr. Al Armstrong and Miss D. Villiers, who acted as field assistant in 1966.

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## II THE PHYSICAL REGIME

### The Mackenzie Delta

The Mackenzie Delta area forms a large central core zone for the region. From Point Separation, to its northern coastal margin, it is 130 miles in length, while its average width is 40 miles. To the north it is bordered by the Beaufort Sea. On the west the Richardson Mountains and the Arctic coastal plain and plateau areas form distinct boundaries south and eastward. The Mackenzie Plain with a variety of physical landscapes constitutes a boundary for the delta. In the north this culminates in the Arctic tundra and coastal areas in the vicinity of Tuktoyaktuk.

The Mackenzie Delta with its maze of lakes and channels defies easy description. The Peel, Rat, Arctic Red and Mackenzie River drainage systems empty into the delta and contribute silt to its formation and its continuing change.

MacKay (1963) who has done extensive work on the Mackenzie Delta, has divided it into three distinct regions. These are: the main delta, extending north from Point Separation to Shallow Bay; the alluvial islands north of Shallow Bay and the rocky islands, a small area north of 68°N, in the vicinity of the east channel, in the eastern sector.

### Channels

The delta is interlaced with an intricate network of channels and connecting lakes. The main channels are the following:

The East Channel - north-south access along the east side of the delta.  
 The Middle Channel - central access route through the delta.  
 The Peel, Husky and West Channels - access route along the western part of the delta on a north-south basis.

There are a number of smaller channels which are important connecting links in the total drainage and transportation systems. These are the Aklavik Channel, oriented from southeast to northwest, connecting the Middle Channel with the West Channel and the Napoiak Channel, connecting Shallow Bay and Mackenzie Bay to the Middle Channel, with a southeast northwest orientation. The Schooner Channel, forming a throughway channel and having a reversing flow in a central maze of lakes and channels, connects the Aklavik Channel to the Napoiak Channel.

### Lakes

The Mackenzie Delta is a lake area with thousands of lakes and ponds. Indeed, many of the lakes in the southern part of the delta are in reality no more than tiny ponds. The typical delta lake is irregular in outline with an indented shoreline. Delta lakes are shallow with few exceeding ten feet in depth when measured at low water. The shallow depths are important in the habitat conditions of muskrat, the important fur species. High water depths are much greater as shown by the high water marks on lakeshore willows. Between Inuvik and Aklavik 30 - 50 per cent of the delta area is covered by lakes and ponds (MacKay 1963 p. 98). North and



south of this central area the percentage of area in lakes decreases 15 to 30 per cent.

### Levees

Poorly developed levees exist in the southern half of the delta. Levees are common in the northern portion of the delta. The position of the levee curls are usually close to the channels and normally have widths of several feet.

### Arctic Coastal Plain

West of the Mackenzie Delta, the Arctic Ocean is bordered by patches of narrow, low coastal plain bounded on the land side by a scarp of cliffs 20 feet high or more. A second plain surface extends inland from the top of the scarp and is regarded as the main coastal plain. It extends southward sloping upward for 6 to 12 miles. Small lakes and ponds are spotted over this main, or raised coastal plain, from the Mackenzie Delta to the Firth River, except where the larger streams, such as Blow and Babbage Rivers, have developed flood-plains and deltas as they approach the sea and appear to have obliterated them. West of the Firth River they are absent, even between the larger streams, and the surface of the plain appears more even than to the east. The Blow and Babbage Rivers have braided stream channels in the Arctic plateau and coastal plain zones. Many of the lakes and ponds are remnants of lagoons of former shorelines - several of which parallel the coast as far inland as 8 to 10 miles, near Babbage River. Those still farther inland appear to have had a different origin.

Lakes in the area are mostly the result of poor drainage due to permafrost conditions. Most lakes throughout the Old Crow Plain tend to have a rectangular outline and an over-all rectangular pattern. They are bounded by nearly straight shorelines joined by gentle curves, and most trend northwest or northeast. The shores of the lakes observed in the region, are almost entirely of vegetable material, easily shifted by ice, wind or wave action. The northwest orientation of the shorelines coincides with one of the main wind directions.

Several small boat harbours exist along the Yukon coast from the Delta to Herschel Island and Clarence Lagoon. Among these are Whitefish Station, Shingle Point, King Point, Jay Point, Phillips Bay, Ptarmigan Bay, Herschel Island and Clarence lagoon. Most of these anchorages are protected by low sandbars which are submerged in storms. In the coastal area, gale winds of sixty miles an hour are not uncommon and care must be exercised in anchoring boats to sandy and muddy bottoms.(1)

### Herschel Island

Herschel Island is separated from the mainland by a narrow channel to the south with shallow depths. The distance between Osborn Point and Catton Point on the mainland is approximately 4,600 feet. The island has a domed shape rising to a maximum elevation of 596 feet in the central portion. Drainage consists of intermittent run-off streams which

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(1) Similar conditions pertain in respect to boat harbours along the eastern part of Tuktoyaktuk Peninsula



fall swiftly to the sea. Bluffs occur on the northwest and northeast sides of the island. Thetis Bay, on the southeast side of the island, has ample depths for vessels with deep drafts and a protected anchorage is available at Pauline Cove west from Colinson Point.

### Arctic Plateau

South of the Arctic coastal plain the land rises to a rolling surface and is referred to as the Arctic plateau. In some parts of its length, particularly east of the Babbage River, the boundary between the Arctic coastal plain and the Arctic Plateau rises as a gentle scarp. Southward, the plateau sweeps up to the bordering mountain ranges and into the gap between the Richardson and the British Mountains. Here it is studded with scattered ridges of hills and low mountains, some of which, by the general level of their tops, suggest the presence of a higher erosion surface. Mount Fitton, 4,500 feet in elevation west of the Blow River, represents a maximum elevation for this area. (1)

The ridges indicate the plateau is largely underlain by folded strata of probably sedimentary rocks. From Shingle Point, southeastward, the Arctic Plateau becomes a narrow belt between the Richardson Mountains, the west Channel and the delta. Fish Creek rises in the Richardson Mountains to the southeast, follows a deep valley through the plateau to the north, and empties into Moose Channel. Canoe Lake west of Aklavik is located on the plateau north of the Richardsons.

The Arctic Plateau is crossed by the migratory routes of herds of caribou.

A few scattered lakes and ponds lie along the valley of the Babbage River which has a relatively narrow course in the plateau.

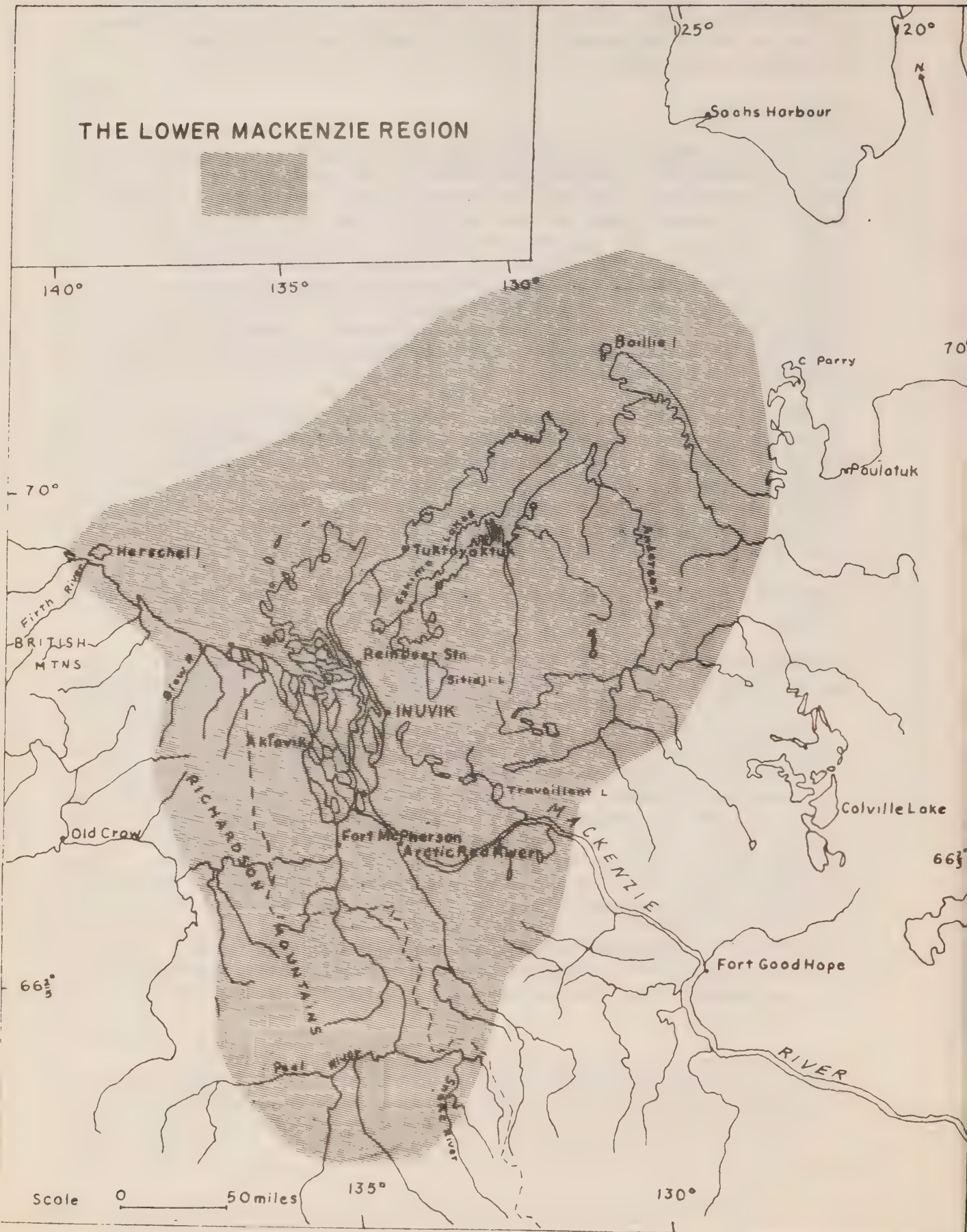
Drainage irregularities show in air photographs taken east of the Firth River, along the northern edge of the plateau as far inland as twenty miles from the sea. These include ponds, small lakes and abandoned drainage channels extending northwesterly across the divide between the present valley streams. These are thought by Bostock, (1948,1961), to be of glacial origin and, as such, would indicate the ice pushed westward along the lower part of the Arctic plateau. It is also thought that Herschel Island may owe its existence to morainic deposits.

- 
- (1) A granite pegmatite intrusion occurs in the vicinity of Mount Fitton. An orebody there consists of scheelite and wolframite in a blow out deposit at the end of a forty-mile fault zone.

Three prospectors from Aklavik are attempting to develop a mining operation in the vicinity of Mount Fitton. Using home assay methods they are attempting to prove out a potential platinum discovery.



# THE LOWER MACKENZIE REGION





## Richardson Mountains

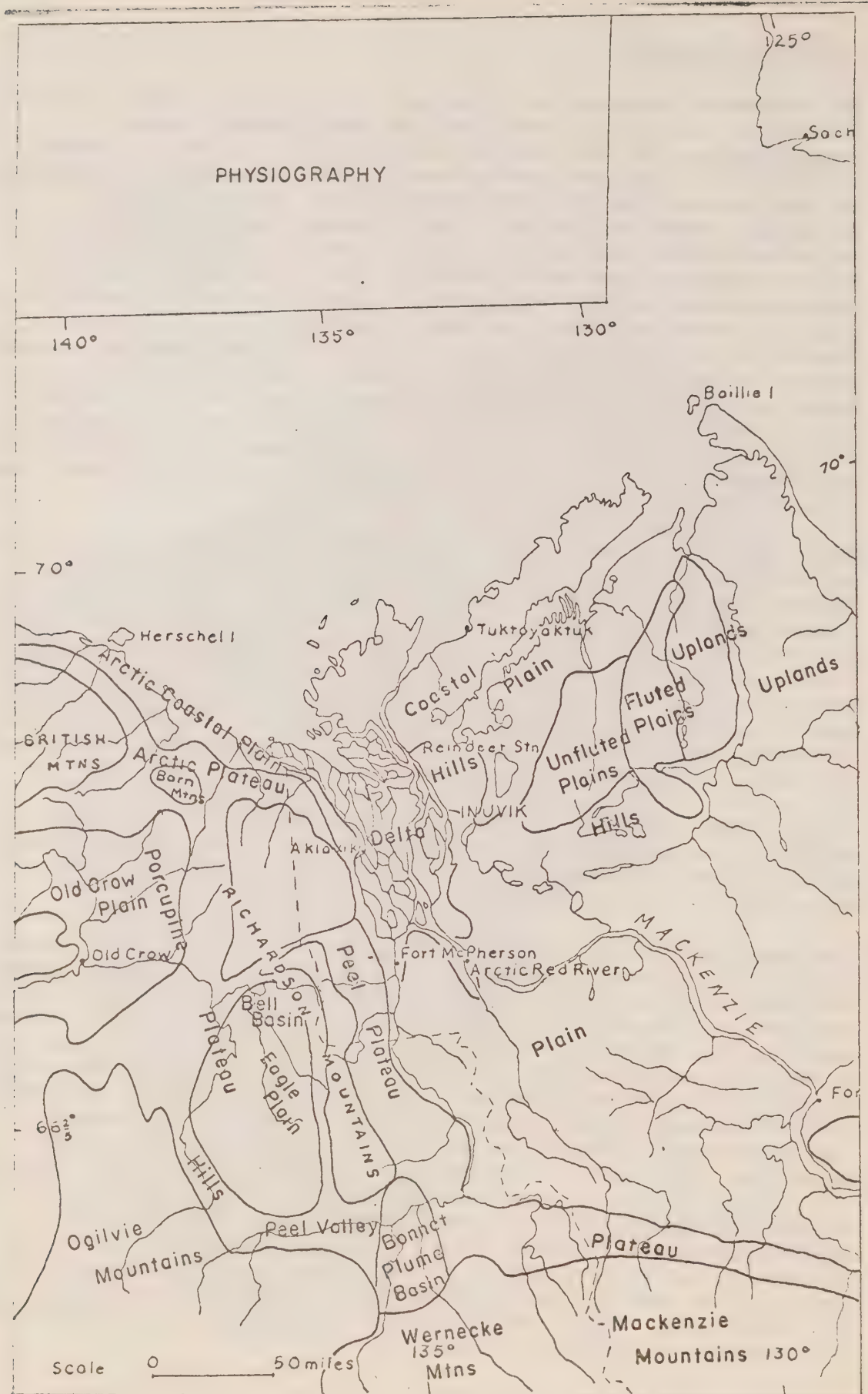
The Richardson Mountains are remarkably straight and, except in their broad north end, form a narrow belt of rough country between Peel Plateau on the east and the Porcupine Plain and Arctic Plateau on the west. They form a continuous watershed throughout their length. The sediments of the Richardson Mountains are largely Mesozoic (primarily Cretaceous) in age. The Richardson Mountains were uplifted in the widespread early Tertiary alpine orogeny, which produced the Rocky Mountains to the south (Jeletzky 1961). The greater part of these mountains presents the aspect of closely spaced hills with smooth profiles, broken only here and there by outcrops of harder strata crowned by scattered crags. For the most part, the Richardson Mountains are no more rugged, and are lower, than the southern foothills of the Rocky Mountains, which they somewhat resemble in their bare slopes. Their adjacent position to areas of relatively low relief - Mackenzie Delta, and Interior Plain on the east, Peel Plateau, Arctic Plateau, and the Porcupine Plain to the west - is partly responsible for their being termed mountains.

There is a central area between Canoe Lake and Rat River which is truly rugged containing sharp ridges with steep, rocky slopes and spurs, separated by deep V-shaped valleys. On the flanks of this central area the mountains revert to their typically less rugged character. Here most of the strata appear to dip at angles of 25-40 degrees and many of the ridges are asymmetrical, with gentle dip slopes and steep bases where the beds are exposed. Towards their northern extremity these mountains form roughly parallel ridges striking north and merging in that direction with the surface of the Arctic Plateau. They do not turn westward to parallel the coast, as suggested in some earlier reports.

Various spot elevations have been recorded for the mountains north of the Rat River. Between the Porcupine and the Bell, elevations of 6,500 feet and 5,120 feet have been recorded. West of the Husky River, Mount Goodenough is only 3,210 feet high.

Southward from the rugged area, the Richardson Mountains narrow to 25 miles at Rat River Portage and to 12 miles opposite Road River. From Vittrekwa River to the south end of the mountains, at Peel River, they continue as a narrow belt. Fifty miles from their north end they become lower, and it is doubtful if any points in them south of Rat River reach an elevation of 4,800 feet. Commonly, the mountains have steep smooth slopes, only a few rough outcrops even on their ridge tops, and some of their ridges are long and even, and viewed from the air, resemble immense road embankments. These features suggest a former erosion surface truncating their tops. On the west side, Richardson Mountains rise from the Porcupine Plain as a belt of low foothills five to ten miles wide. These hills mark the first upturned strata and are followed by successively higher, steeper ridges as the mountains are entered. On the east the border is more sharply defined, appearing in some parts as a scarp, as far south as the Vittrekwa River. From there southward, spurs of hills diverge south-eastward from the main line of the mountain front and disappear in the Peel Plateau.







## Richardson Mountain Drainage System

The Richardson Mountains for most of their length, form the divide between the drainage areas of the Porcupine River and the Peel River. Streams flow northerly from the northern part of the mountains direct to the Arctic Ocean. Stream directions in the mountains are largely controlled by structure and dendritic patterns prevail.

West of the southern portion of the Richardson Mountains the Arctic Plateau merges with the Porcupine Plateau. The headwaters of the Peel River originate on the Porcupine Plateau. Approximately sixty miles west of Fort McPherson lies Bell Basin and the Eagle Plain. A number of rivers offer easy winter access routes through the mountains, the principal one being the Rat River and McDougall Pass Bell River route. Other routes are along Vittrekwa Creek, the Road and the Rock River systems.

The southern half of the Richardson Mountains separates the Peel and the Porcupine drainage systems. In winter the frozen drainage systems afford a ready means of crossing the mountains by dog team.

## Glaciation

Evidence for glaciation is apparent only on the east side of the Richardson Mountains. Boulders of granitic gneiss that could only have been derived from the Precambrian terrain to the east are found on Mount Goodenough to a height of 3,000 feet.

A tongue of the ice sheet that covered most of Mount Goodenough may have extended into McDougall Pass.

## Geology

The rocks described from Richardson Mountains are sedimentary. These include a thick section of sandstones and shales overlying sandstones and quartzites. At least the upper part of this section is of the late Mezoic age. No fossils have been obtained from the lower strata, and the rugged central area of the northern part of the mountains is now being explored from the ground. Near Mount Goodenough a dioritic intrusion is exposed for a quarter of a mile. Dykes have been found in scattered localities along the east side of the Richardson Mountains.

## Peel Plateau

The Peel Plateau is a great triangular terrace, occupying the angle between the north front of the Mackenzie Mountains and the east front of the Richardson Mountains, and overlooking the Interior Plains on the northeast. Its northeast boundary is a scarp facing the Mackenzie Delta, the Interior Plains and the Mackenzie Plain. It extends as a narrow sloping step, in front of the Richardson Mountains, along the west side of the Mackenzie Delta and Peel River from 24 miles north of Rat River to Satah River. From there the boundary sweeps in a broad curve east and southeast to the Mountain River. Throughout this distance, nearly 250 miles, the scarp rises conspicuously 200 to 1,000 feet, except between Arctic Red River and the Ramparts River where it becomes indistinguishable in a broad slope.



The southern boundary of the plateau is well-defined along the foot of the Mackenzie Mountains. The western boundary is marked by the front ridge of the Richardson Mountains and the southeast extremity of the Porcupine Plateau.

The dissection of the Plateau is, as a whole, in a youthful stage. The main water courses have their heads in the mountains and have cut their courses to fairly steady grades in canyon-like valleys where their stream beds occupy nearly half the valley floors. The Road River has a braided stream pattern in the zone between the plateau and the Peel River. The Peel River is 600 to 1,000 feet below the plateau for some hundreds of miles. Within this distance the valley varies from youthful and canyon-like where the rock is resistant, to mature and broad in areas of soft rock. This is also true of some of the other main streams. Between the mouths of the Bonnet Plume and the Snake Rivers some of the meanders of the Peel are entrenched in the plateau.

The Peel River leaves the plateau at the Satah River. North of Fort McPherson the Peel River Delta begins approximately fifteen miles from the settlement and merges with the Mackenzie Delta.

#### Glaciation

Peel Plateau appears to have been covered by pleistocene ice except, perhaps, for its highest levels, such as those of the third step, and some small area, such as the summits of the Trevor range. Ice movement seems to have been northwest along the Mackenzie River, west on the Upper Peel River and north on the lower Peel River. Recession, or melting of the ice, seems to have been from west to east, thus enabling the drainage to cut a great canyon-like course from Arctic Red River drainage basin near Beaver Lake, across the present watershed to the great bend of the Snake River.

#### The Peel River

The Ogilvie and Blackstone Rivers, which rise in the Ogilvie Mountains, converge on the Porcupine Plateau to form the Peel River. Below the Peel River canyon the river flows into an oversized valley. The Peel River has cut a steep terrace face along the eastern edge of the Peel Plateau. About fifteen miles north of Fort McPherson the Peel River Delta commences and down river merges with the Mackenzie River Delta.

The basin comprising the lower part of the Peel River includes parts of the Arctic Red, Ramparts, Hume and Mountain Rivers. This is the Cretaceous basin, extending westward from the Mackenzie River, north of the Rampart and east of the mountains to the Arctic coast.

Generally speaking, the Peel River is navigable throughout its length by small barge or canoe.

#### Mackenzie Plain

The term Mackenzie Plain is applied to a wide zone between the Precambrian Zone on the east and the Richardson Mountains and Peel Plateau on the west. The Mackenzie Plain slopes gently northward



from a height of 200 feet above sea level to 100 feet in the proximity of the delta. A few hills rise above the plain to a height of 400 feet along the winter trails from Fort McPherson to Arctic Red River. A narrow strip of the plain stretches west of the Peel River from Shiltee Rock to Husky Lake. Looking westward from McPherson, the Peel Plateau can be seen rising from the plain in several well-marked terraces.

The Mackenzie Plain was covered by the continental ice sheet, which extended over Peel Plateau in some places to the foot of the Richardson Mountains. During the retreat of the ice sheet the plain was dissected by numerous meltwater channels, which usually followed channels of the pre-glacial drainage pattern. Post glacial erosion is characterized by short V-shaped valleys. South-eastward from Fort McPherson, abandoned channels of the Peel appear as prominent features along its west bank and have the form of steep-sided valleys, about 100 feet deep and several hundred feet wide. The floors of most of these valleys are flat and covered by alluvium, but some are suspended above the recent deposits of the Peel River.

In the area between Jackfish Creek and Satah River, a large expanse of swamp land occurs. The Sainville Creek meanders through this lowland area.

The greater part of the area between the Mackenzie Mountains and the mouth of the Arctic Red River is underlain by Cretaceous sediments. On Mount Edith, at the junction of the Arctic Red River, there is some faulting with Silurian strata thrust onto Devonian.

The Arctic Red River, (250 miles in length), is navigable beyond Weldon Creek, by shallow draft scow. Upstream, 12 miles from Arctic Red River, the river is shallow requiring care in navigation. Shallows throughout its course are a hindrance to any but experienced travellers.

Local Indians report there is a backup of water on the lower reaches of the Arctic Red River during rainy periods in the autumn.

In the southern part of the region from Point Separation to the Tree River, altitudes remain low with higher areas occurring south from Arctic Red River. Here elevations rise to 500 feet. In the vicinity of Tree River two short esker formations occur. Along the Mackenzie, south of Arctic Red River to the Tree River and Travaillant River, the river is sided by steep cliffs.

Travaillant Lake covers an area of approximately 42 square miles. The surrounding terrain rises in elevation to 500 feet within a short distance of the lake giving it a basin effect. The Travaillant River drains from the north into this basin and thence in a wide meander into the Mackenzie. North and east of Travaillant Lake altitudes range between 500 to 1,350 feet with the major portion of the area being over 500 feet. River valleys and subsequently lake systems fall below the 500 foot contour level.



North-east of Travaillant Lake a low area occurs, covered with numerous lakes and ponds. This is commonly referred to as the "Little Delta", by local residents. This merges with a flat plain having an elevation of 50 to 150 feet and covering a large area south-east of Campbell Lake. Lakes are conspicuously absent in this plain.

Campbell Lake, a narrow lake with a north-east, south-west trend, is flanked by high, rocky limestone hills. The lake is accessible from the Gull River, a narrow channel with depths varying from extreme shallowness at its north eastern end, to ample depths for small boats close to the east channel. In the upland area surrounding Campbell Lake, bedrock either outcrops in escarpments or is close to the surface in both bedrock and ground moraines. (1)

Northward, between Campbell Lake and Inuvik, small deposits of lead and zinc are known to occur in the Dolomite or Long Lake area.

North-eastward from Campbell Lake lies the broad Sitidgi Lake Valley. The floor of this valley is continuous to the north with the coastal plain. The central portion of the valley is occupied by Sitidgi Lake which is accessible by portage from Campbell Lake.

The Caribou Hills form a rolling to hilly area extending from north of Reindeer Station to just south of Inuvik. The east channel of the Mackenzie River flows close to the western flank of the Caribou Hills. The outstanding linearity of the western face of the Caribou Hills appears to indicate the presence of a normal fault lying beneath the north-eastern margin of the Mackenzie Delta. The Caribou Hills reach a maximum altitude of 800 feet near Reindeer Station decreasing gradually in altitude to the north-west and south-east. The beds of the Caribou Hills are poorly consolidated gravels, sands and silts with thin seams of lignite. The western face of the hills has been eroded in places and is serrated by deep gullies. In the vicinity of Inuvik there is a gentle sloping area, about a mile wide, between the east channel and a 150 foot contour. Eastward the land rises as a bluff to altitudes of 300 to 400 feet. Kame and meltwater channels exist in this area.

In the southern part, the gentle north-eastward slope of the Caribou Hills is abruptly terminated by two flat-topped ridges occurring immediately west of Sitidgi Lake.

North of the Caribou Hills, a coastal area occupies the zone between Kendall Island and Cape Dalhousie in the east, extending ten to twenty miles south of the Eskimo Lakes. Generally, the area lies below 200 feet in altitude with about 50 per cent of the area being below 100 feet. At Kittigazuit, a series of low hills occurs ranging from 100 to 200

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(1) Lead and zinc deposits occur on the west side of Campbell Lake. These were discovered prior to 1900 and staked circa 1911. The claims were allowed to lapse.



feet in altitude. Lakes cover an estimated 15 per cent of the land surface (MacKay 1963, p. 136). Features of pleistocene glaciation are observable in varied distribution through the area and consist of morainic hills, pitted outwash plains and occurrences of fluting.

#### Permanently Frozen Ground - Permafrost

The northern part of the lower Mackenzie region falls into the accepted zone of permanently frozen ground. The southern limit of permanently frozen ground occurs south of Fort McPherson and Arctic Red River. Permafrost develops where and when mean air temperatures are continuously negative; the temperature of the surface portion of the permafrost itself fluctuates seasonally. The soil layer above the permafrost table contains ground ice which thaws in the spring and freezes in the summer.

As might be expected, frozen ground phenomena are readily observable in the Arctic tundra and coastal portion of the region. Circles, polygons and stripes have a varied distribution throughout these areas and are readily observable either from the air or in ground traverses.

#### Pingos

Pingos, ice-cored, conical hills are located in an area extending from Richards Island through the Tuktoyaktuk Peninsula to Cape Dalhousie. Elsewhere in the region they have a scattered occurrence. In height they range from ten to 150 feet and vary in shape from oval through elliptical to nearly circular. Varied theories have been postulated in respect to their origin. The most generally accepted theory is that of Porsild (1938, p. 55).

The Eskimo Lakes south of Tuktoyaktuk and north-east of Inuvik, have a north-west to south-west orientation. Gravity and magnetometer surveys have revealed a series of underlying faults. Martin (1959) has postulated that the Eskimo Lakes were originally in the form of a graben during the latter part of their formation. The east and south-east side of the Eskimo Lakes show a high degree of shoreline indentation and arcuate peninsulas divide the Eskimo lakes into several large water bodies. The Eskimo Lakes are approximately 92 miles in length from Liverpool Bay to their terminating point just north of Sitidgi Lake. They cover an approximate area of 340 square miles. Lake depths vary considerably with maximum depths exceeding 200 feet. The Lakes are navigable throughout their extent by boat.

They are connected to Sitidgi Lake to the south, by a small stream which is navigable by boats having a draft of several feet.

Eastward, a series of unfluted plains extends between the Mining and the Kugaluk River. The altitude decreases from south to north falling from 1,000 feet to 100 feet over a distance of approximately forty miles. Major glacial features are conspicuously absent with the exception of a few eskers and fluting randomly distributed in a few areas.

Further eastward, a belt of fluted plains 20 to 30 miles in width covers the area between the Kugaluk and the Anderson. Fluting is a feature of glacial erosion occurring in bedrock, till and stratified drift. The



fluted plains are a flat area broken only by a few rolling hills, rocky escarpments and cuerdas with cang and tail topography. There is a rise in altitude, from north to south, terminating in the high rocky terrain of the Hyndman Lake hills in the south. A pleistocene valley connects the Kugaluk River area to the Wolverine River valley. The Wolverine, Iroquois and Carnwath form part of the Anderson River drainage system.

The Hyndman Lake area is observable as a distinctive region with higher terrain. Altitudes rise to 1,000 and 1,500 feet in the southern portion of the area. Devonian rocks occur at the surface, or near the surface, covered by younger sediments. Hills, scarps and narrow walled valleys are features of the area.

The Anderson River upland extends in a broad zone from Wood Bay to the Crossley Lakes and is divided on a north-south basis by the Anderson River Valley. This is an extremely complex area of diversified relief, varying from flat lake-strewn terrain east of the Crossley Lakes, to flat to rolling terrain in the north. (1)

#### Low Water Periods

A fast run-off occurs in the spring months during which rivers and streams in the plateau and mountainous areas have high water levels. This also occurs with respect to rivers and streams in the Mackenzie Plain area where drainage occurs from higher elevations. During low water periods, (mid-July to end of August), smaller rivers and streams become hazardous for navigation by small boats and this can only be accomplished by arduous poling and portaging.

#### Currents

On a south-north basis, between Travaillant River and Arctic Red River, the currents are about three to four miles per hour. This is continued in the Middle Channel. Downstream from Fort McPherson on the Peel River, currents are two miles per hour. The speed of currents increases somewhat on the Peel Channel to two and a half miles per hour. The current on the West Channel below Aklavik is approximately three to four miles per hour.

#### Tides

In the Arctic coastal areas the tidal range is low. The tidal range in the Beaufort Sea varies from one foot to a maximum of about three feet. The tidal range in Liverpool Bay is approximately 1.5 to 2 feet. Weather conditions are the principal factors in affecting marine water levels. In general, strong westerly gales are locally forecast several hours in advance by abnormal rises in water levels. Strong westerly winds raise water levels from one to three feet while in contrast strong easterly winds lower water levels by one to two feet. (2)

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(1) MacKay (1958) has dealt in detail with the physical features of the Anderson River area.

(2) Marine forecasts are given periodically by the D.O.T. Station at Inuvik.



## Hydro Electric Potentials

While large scale hydro-electric potentials exist in the lower Mackenzie region, there appears to be little existing room for speculation over their use in the near future. For example, the Porcupine - Rat - Peel River systems have an estimated 1,200,000 potential in K.W. with four possible sites for the development of power stations. Some comparisons can be made with the proposed Ramparts Dam development scheme in the Yukon, but a wide gap exists in respect to potential use in terms of population and industry.

The development of hydro-electric potentials at the regional level is largely predicated by location in respect to the population centers and a lack of industrial development. The Rat is located approximately thirty miles from Fort McPherson and forty miles from Aklavik. It is separated from Inuvik by the broad delta expanse where the erection of transmission lines would be difficult.

## Petroleum Prospecting

In the early 1950's a number of major oil companies were attracted to the Eagle Plains, a complex structural basin in the northern Yukon with late Paleozoic to Mezoic rocks, which consist of porous carbonates and thick sequences of sandstones. In 1960, Western Minerals Chance No. 1 was drilled resulting in the discovery of large quantities of oil and gas. It is now a suspended oil and gas well. Two further gas wells and one oil well have been discovered since this original find of oil and gas. Socony Mobile, the major petroleum exploration company, withdrew from the Eagle Plain in 1965.

In recent years increased interest has been shown in the Peel Plateau which forms part of the western interior sedimentary basin. In 1965, four wells were drilled on the Peel Plateau. No significant finds have occurred. Shell Oil and Imperial Oil have been the major petroleum exploration companies.

Further north in 1965, a significant wildcat well was started on Richards Island reaching a depth of 12,668 feet by 1966 before suspending drilling. Several gas shows were announced by B.A. Oil Company, operators of the well.

Petroleum experts have estimated that the Beaufort shelf and Arctic coastal plain, from the east side of Franklin Bay to Herschel Island, contains a potential of six billion barrels of petroleum contained in 120,000 cubic miles.

With the exception of a portion of the Richardson Mountains, the whole of the lower Mackenzie Region is held under petroleum prospecting leases held by major oil companies.

The economics of oil developments in the Mackenzie Valley have been examined in detail in Dr. A. Quirin's report (1962).

Exploration by petroleum companies has contributed fairly substantial amounts of income to local residents in the lower Mackenzie region, who



have been employed in field crews, camp maintenance staffs and through local contracts. (1)

### Coal

Mesozoic coal measures occur in various locations along the Arctic coast. Inland tertiary coal measures occur in the Wind and Bonnet Plume River areas.

Between 1941 and 1950, there was some mining activity at Coal Mine Lake along the Moose Channel, north of Aklavik. The coal is semi-hard and ash content amounts to 11 per cent. The mine was operated by a white entrepreneur from Aklavik. Approximately 700 tons of coal were produced. The coal was transported by small barge to Aklavik. The coal retailed at Aklavik at \$20.00 a ton, and was purchased by Missions and private householders. Three tons of coal were also purchased annually by the Reindeer Project for use in the herders' tents. The shallowness of Moose Channel for transporting coal, limited production and a limited demand, were major factors in the closing of this mining operation. The coal was non-competitive with oil.

### Crest Iron Ore Development

One of the world's largest iron deposits, the Crest Iron Ore development, is situated 150 miles south-east of Fort McPherson between Snake and Cranswick Rivers. This ore body was staked in 1962 by Crest Exploration Ltd. The hematite jasper ore has an iron content varying from 45 to 50 per cent. The block of claims is a large one covering 100,000 acres. The Snake River development is 420 miles in a straight line from the nearest seaport, Skagway, on the Alaskan Panhandle.

The major interest in this deposit has been shown by Japanese industrialists. At the present time the ore is non-competitive with cheaper sources in western Australia. Three factors are involved in developing this ore body, profit, transportation and markets.

The nearest access road is at Keno Hill in the Yukon and this is separated from the ore body by the Selwyn Mountains.

Development of this resource would provide some employment. Open pit mining would be the primary extractive method used in exploiting this resource.

Principal developments have been air strip facilities and roads on the ore body.

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### (1) Petroleum Exploration

In the northern part of the region the permit term is 12 years with an expenditure of \$2.90 per acre on exploratory work during the course of the term.

Latitude 68°N forms an east west boundary between the north and south portion in terms of oil exploration. In the southern portion the permit term is 10 years with an expenditure of \$2.90 per acre in the course of exploratory work.



While some consideration could be given to developing alternative transportation routes through the Mackenzie Valley, these do not lead to potential markets in the Pacific area.

### Climate

Climatically the study unit falls within the broad spheres of Tundra (ET) and Sub-Arctic (Dfd) climates. According to the Köppen classification, Aklavik, Inuvik, Fort McPherson and Arctic Red River are in the sub-Arctic zone. Reindeer Station is transitional in climatic location while Tuktoyaktuk is in the Tundra zone. The characteristic feature throughout the region is one of long cold winters with low precipitation.

### Temperatures

Aklavik, Inuvik, Fort McPherson and Arctic Red River experience the coldest month in January. The average minimum at Fort McPherson in January is  $-21^{\circ}\text{F}$ . In contrast, Tuktoyaktuk experiences its coldest month in February due to radiation from water beneath the sea ice. At Aklavik, the mean monthly temperatures range between  $-17$  and  $-18^{\circ}\text{F}$ . for the three coldest months, while those at Fort McPherson range from  $-21^{\circ}$  to  $-15^{\circ}\text{F}$ . for the same period. Extreme temperatures have ranged from  $-62^{\circ}\text{F}$ . in February to  $93^{\circ}\text{F}$  in July at Aklavik. The mean daily maximum temperatures exceed  $50^{\circ}\text{F}$ . in June, July and August. At Fort McPherson the average temperatures of the three summer months is 53 degrees for June, 58 degrees for July and 53 degrees for August.

The maximum recorded temperature for Inuvik is  $88.5^{\circ}\text{F}$  for June 21, 1958, while the minimum recorded temperature occurred February 13, 1965, with temperature of  $-62.0^{\circ}\text{F}$  being recorded. (1)

Along the Arctic coast, winter temperatures predominate from October to May. For these eight months the mean monthly temperature is below  $32^{\circ}\text{F}$ . The mean monthly temperature in February is  $23^{\circ}\text{F}$ . Temperatures often fall below  $-40^{\circ}\text{F}$ . in the winter months.

During July and August summer temperatures predominate. Mean monthly temperatures rise to  $49^{\circ}\text{F}$ . in July. During the months of June, July, August and September, the mean monthly temperatures rise above the freezing point.

There is a large diurnal range in temperature during the warmest months. Temperatures have been known to rise over  $80^{\circ}\text{F}$ . in June and July but have also fallen below the freezing point.

Some comparative climatic data is available to show the climatic variation between Tuktoyaktuk and locations in southern Canada.

### Precipitation

The annual precipitation for the Lower Mackenzie region is low. It

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(1) Inuvik Research Station records 1958-1965



decreases from south to north with Fort McPherson receiving 11 inches to a total of 9.1 inches for Aklavik, and a total of 10 inches in the Arctic coastal area (Tuktoyaktuk). At Inuvik on the east side of the delta, the total amount of precipitation is 8.5 inches. The higher totals for Fort McPherson and Aklavik suggest orographic precipitation arising out of proximity to the Richardson Mountains. In the Arctic coastal zone sixty per cent of the precipitation comes in July, August, September and October.

Precipitation in the summer months comes mostly in the form of rain of cyclonic origin in the central and southern part of the region, and occurs usually in July and August. Warm air entering the region from the south is the major cause of summer precipitation.

Occasionally, thunderstorms occur in the central and southern part of the region. Along the Arctic coast snow squalls, sleet or driving rain may occur during the summer months.

### Snowfall

The amount of snowfall is light decreasing from south to north. The mean annual snowfall at Fort McPherson is 48.6 inches. At Inuvik it is about 45.1 inches per year. There is a decrease in the amount of snowfall in the Arctic coastal areas with an annual mean of around 24 inches. Snowfall in the central and southern part of the region is rather evenly spread throughout the winter, with October and November being months of heavy snowfall at Aklavik and Fort McPherson. The mean density of snow at Aklavik is 0.242.

Exposure of fallen snow in the Arctic coastal areas to wind, results in compact drifts of hard snow distributed in uneven drifts, while further south, snow has a tendency to remain less hard and more evenly distributed, due to forest cover and less exposure to wind.

### Fogs

Fogs are common in the summer along the Arctic littoral. Aklavik and Inuvik may experience fog due to prolonged winds blowing inland. At Fort McPherson maximum fog occurrence is experienced during late winter, in the late autumn and the early winter months. Coastal fogs frequently present some difficulty in boat travel, a hazard which is increased by ice drift. For example, boats are able to reach Herschel Island about July 10, but wind and current borne pack ice may reach the Yukon coast at any time during the summer.

In late July 1964, a party bound for Herschel Island to take part in an organized sealing project, were ice bound at the mouth of the West Channel.

### Wind Directions

The mean percentage frequencies of the wind direction show a strong preponderance of north and north-west winds. At Aklavik, the annual mean for north-west winds is 24 per cent and for the north winds 20 per cent.



## AVERAGES AND EXTREMES OF CLIMATIC DATA

STATION Aklavik

LAT 68° 14'N

LONG 135° 00'W

ALTITUDE ABOVE M.S.L. 30 Ft.

	AIR TEMPERATURE							PERCENTAGE FREQUENCY OF DAYS WITH MINIMUM TEMPERATURES AT or BELOW					Mean Cloud Amount 10ths of Sky Covered
	Mean Daily	Mean of Daily		Mean of Monthly		Highest Recorded	Lowest Recorded	-10°P	-20°P	-30°P	-40°P	-50°P	
		Maximum	Minimum	Maximum	Minimum								
	°F	°F	°F	°F	°F	°F	°F						
January	-21.7	-14.7	-28.6	15	-50	44	-59	91	73	51	27	5	5.2
February	-18.9	-11.7	-26.1	15	-48	49	-62	88	68	43	16	3	5.5
March	-9.1	-0.1	-18.0	24	-40	49	-56	75	49	20	2	#	5.0
April	9.2	18.7	-0.3	47	-25	57	-44	28	10	2	0	0	5.6
May	30.0	37.8	22.1	58	2	77	-14	#	0	0	0	0	6.7
June	48.6	56.9	40.3	77	27	86	20	0	0	0	0	0	6.3
July	56.6	64.4	48.8	81	36	93	30	0	0	0	0	0	7.1
August	52.4	59.3	45.5	77	36	88	25	0	0	0	0	0	7.5
September	38.9	43.8	33.9	62	20	76	12	0	0	0	0	0	7.8
October	18.9	23.8	14.0	45	-9	55	-22	4	0	0	0	0	7.7
November	-4.4	1.5	-10.3	22	-30	44	-50	51	23	7	1	0	6.9
December	-17.7	-11.0	-24.4	14	-44	46	-54	88	66	32	11	2	6.2
Year	15.2	22.4	8.1	82	-54	93	-62						6.5
Period	1951 - 1960					1926 - 1960		1951 - 1960					

	PRECIPITATION						WIND		MEAN DAYS WITH		DEGREE DAYS			
	RAIN		SNOW		TOTAL (WATER)		MOST PREVALENT		Average Speed m.p.h.	Fog-Visibility less than 5/8 mile	Blowing Snow-Visibility 6 miles or less	Below 65°F	Below 32°F	Above 32°F
	Mean Amount	Days	Mean Amount	Days	Mean Amount	Maximum fall in 24 hours	Direction	Percentage						
	In.	No.	In.	No.	In.	In.								
January	0	0	4.3	9	0.43	0.43	S	29	6.0	2	3	2632	1603	0
February	0	0	2.8	8	0.28	0.34	S	23	5.6	2	3	2336	1466	0
March	0	0	4.1	9	0.41	0.25	NW	27	6.5	1	4	2282	1251	0
April	T	*	2.6	8	0.26	0.18	N	31	7.4	1	2	1674	667	6
May	0.03	1	1.5	5	0.18	0.21	N	29	7.3	2	0	1063	151	99
June	0.43	5	0.5	*	0.48	0.38	N	27	7.8	1	0	483	1	512
July	1.04	10	T	*	1.04	0.97	NW	26	7.0	1	0	273	0	784
August	1.10	11	0.1	*	1.11	0.62	NW	26	7.0	1	0	459	0	641
September	0.76	8	4.6	5	1.22	0.58	NW	30	7.0	2	0	807	24	250
October	0.01	*	11.3	14	1.14	0.54	NW	29	6.2	2	2	1414	407	10
November	0	0	6.1	13	0.61	0.36	NW	30	5.2	2	3	2064	1076	0
December	0	0	5.1	12	0.51	0.22	NW	30	5.7	2	5	2530	1529	0
Year	3.37	35	43.0	83	7.67	0.97			6.6	19	22	18017	8175	2302
Period	1951 - 1960											1930-60	1950 - 1959	

# Average less than 1 percent

\* Average less than 0.5

a Period 1955 - 1960



Some comparative data is available for mean daily temperatures and precipitation at Aklavik and Inuvik, N.W.T. (Tables 1, 2 & 3)

Table 1

Mean Daily Temperatures, Aklavik and Inuvik, N.W.T.

<u>Month</u>	<u>Aklavik</u> <u>Mean Daily Temperature</u>			<u>Inuvik</u> <u>Mean Daily Temperature</u>		
	<u>Min.</u>	<u>Max.</u>	<u>Average</u>	<u>Min.</u>	<u>Max.</u>	<u>Average</u>
January	-26	-10	-18	-28	-10	-19
February	-24	-9	-17	-26	-9	-18
March	-18	0	-9	-20	1	-10
April	-2	19	9	-4	21	9
May	23	40	31	21	43	32
June	40	58	49	38	62	50
July	47	66	56	45	70	58
August	42	58	50	40	62	51
September	32	44	38	30	47	39
October	15	25	20	13	27	20
November	-9	3	-3	-11	4	-4
December	-23	-10	-17	-25	-10	-18
Yearly Average	8	24	16	6	26	16

Precipitation at Aklavik and Inuvik, N.W.T.

<u>Month</u>	<u>Aklavik</u> <u>Precipitation (in.)</u>			<u>Inuvik</u> <u>Precipitation (in.)</u>		
	<u>Rain</u>	<u>Snow</u>	<u>Total</u>	<u>Rain</u>	<u>Snow</u>	<u>Total</u>
January	0	6.6	0.66	0	7.6	0.76
February	0	5.9	0.59	0	6.8	0.68
March	★	4.4	0.44	★	5.0	0.50
April	★	6.0	0.60	★	6.9	0.69
May	0.25	3.0	0.55	0.16	3.4	0.50
June	0.63	2.1	0.84	0.42	2.4	0.66
July	1.39	★	1.39	0.92	★	0.92
August	1.32	1.2	1.44	0.87	1.4	1.01
September	0.60	3.4	0.94	0.40	3.9	0.79
October	0.07	9.0	0.97	0.05	10.3	1.08
November	0	8.7	0.87	0	10.0	1.00
December	0	4.8	0.48	0	5.5	0.55
Yearly Total	4.26	55.1	9.77	2.82	63.2	9.14

★ denotes trace - less than 1/100 in. of rain or less than 1/10 in. of snow.

Pihlainen, J.A. (1962 p. 5)



Inuvik Weather Summary 1957-65

Temp.	1957	1958	1959	1960	1961	1962	1963	1964	Average
OF.									
Mean Max.	16.3	12.7	10	12.1	15.5	17.5	12.0	12.5	
Mean Min.	1.4	7.7	2.7	6.0	1.9	7.3	-.4	1.1	1.8
Mean Daily	12.5	12.3	7.1	9.6	11.2	13.2	10.6	6.9	10.5
Jan.	-	-24.1	-34.5	-35.9	-28.2	-21.8	-34.7	-35.5	-31.1
Mean Min.									
OF.									
July	65.6	71.6	62.0	61.0	69.7	67.0	66.6	63.8	65.9
Mean Max.									
OF.									

Precipitation in Inches

Total	2.75	6.76	9.04	11.90	12.78	13.78	10.25	10.72	9.75
Snowfall	18.22	54.6	73.2	56.3	68.7	76.9	72.3	53.77	59.25
Mean Wind	-	-	6.1	6.4	5.9	6.5	6.2	-	-
Speed									

Inuvik Snowfall  
Average 1959-64Inuvik Precipitation  
Average 1957-64

<u>Month</u>	<u>Snowfall Average (in.)</u>	<u>Precipitation Average (in.)</u>
Jan.	9.6	0.94
Feb.	5.8	0.54
Mar.	6.64	0.53
Apr.	9.8	0.85
May	2.8	0.57
June	0.64	0.43
July	0.013	1.52
August	0.06	1.04
Sept.	3.4	0.59
Oct.	11.8	1.32
Nov.	8.0	0.62
Dec.	6.2	0.66

Inuvik Research Station



# Comparative Climatological Data

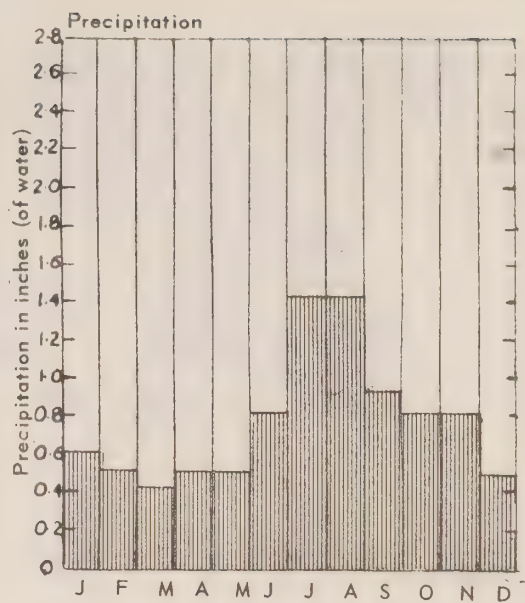
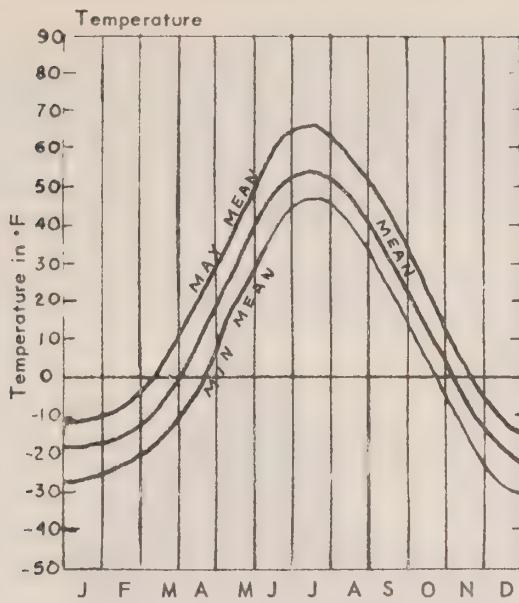
<u>Temperature: (° F.)</u>	<u>Ottawa</u>	<u>Edmonton</u>	<u>Tuktoyaktuk</u>
Mean Annual Temperature	41	36	11
Mean Minimum Temperature	-29	-44	-50
Mean Maximum Temperature	90	90	76
Thawing Index	3,500	3,500	1,500
Freezing Index	3,000	3,000	6,500
 <u>Precipitation (inches)</u>			
Mean Annual Snowfall	80	44	37
Mean October Snowfall	1	5	5
Mean November Snowfall	6	7	8
Mean December Snowfall	17	6	4
Mean January Snowfall	20	7	7
Mean February Snowfall	18	6	4
Mean March Snowfall	14	8	4
Mean April Snowfall	4	5	5
Maximum Recorded Depth of Snow on the ground (inches)	46	30	27
Number of days with measurable Snowfall	57	50	50
Mean Annual Rainfall (inches)	25	10	4
Mean Summer Rainfall (June, July, August)	10	8	2
Maximum precipitation in 24 hours	5	5	2
Maximum precipitation in 15 minutes	0.9	0.8	-
Mean Total Precipitation (inches)	33	17	8

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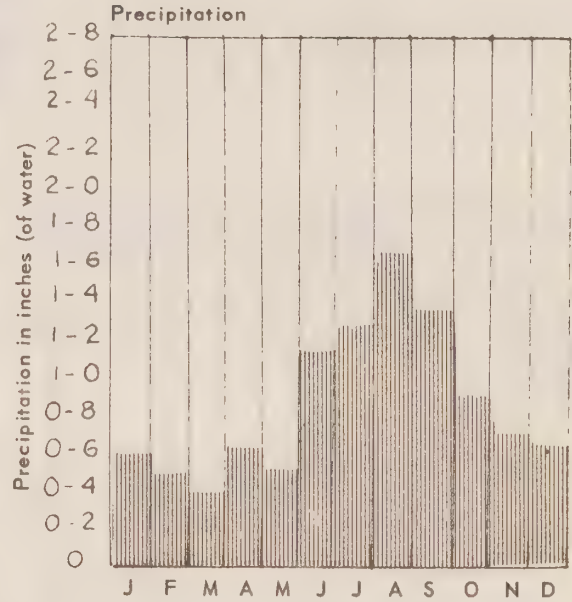
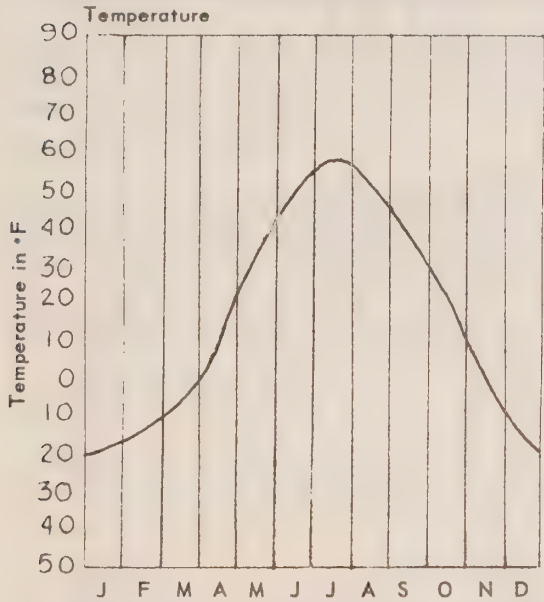
Source: Climatological Atlas of Canada



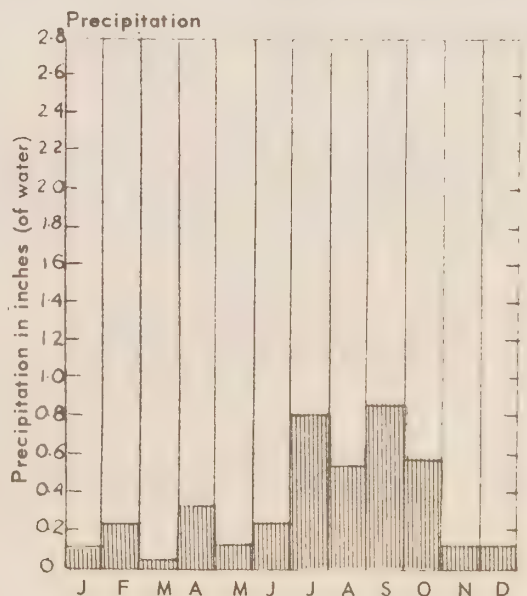
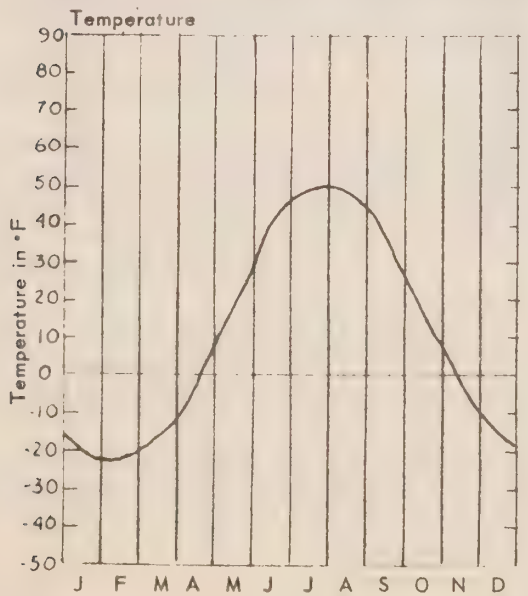
## WEATHER CONDITIONS AT AKLAVIK



## WEATHER CONDITIONS AT FORT McPHERSON



## WEATHER CONDITIONS AT TUKTOYAKTUK





## WEATHER CONDITIONS AT FORT GOOD HOPE

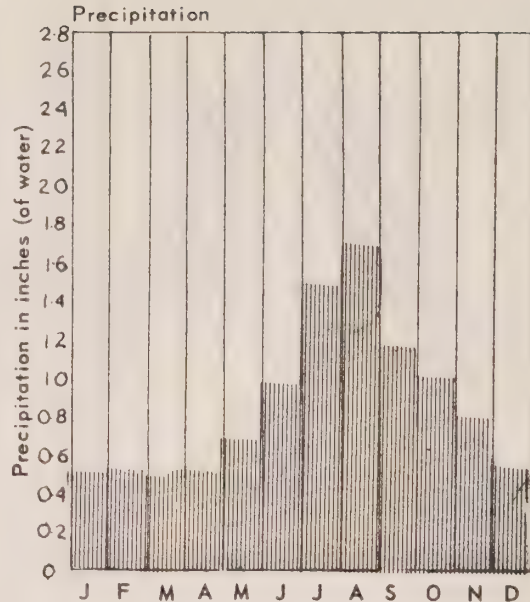
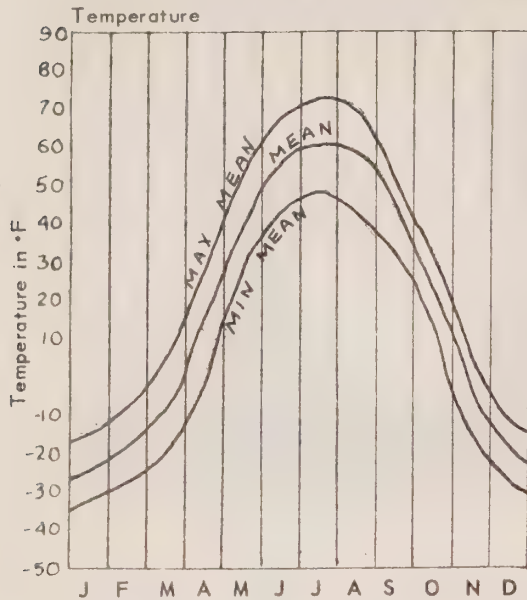


Table 4

## Ice Thickness Data for Aklavik\*

Observation Site — Peel Channel, 300 yards south of radiosonde office at the west end of river air strip 1958-60

Date	Ice Thickness (inches)	Snow Depth (inches)	Date	Ice Thickness (inches)	Snow Depth (inches)
Oct. 7, 1958 new ice forming on shore	—	—	Jan. 8, 1960	40	6
" 9 river frozen	—	—	" 15	46	8
Feb. 20, 1959	39	8	" 22	44	8
" 27	39	9	" 29	42	8
Mar. 6	36	9	Feb. 5	48	8
" 13	42	3	" 12	50	8
" 20	40	3	" 18	51	7
" 27	44	4	" 26	50	7
Apr. 3	47	7	Mar. 4	54	7
" 10	50	6	" 11	55	7
" 17	54	12	" 18	55	7
" 24	51	6	" 25	62	6
May 1	56	4	Apr. 1	62	6
" 8	56	4	" 8	64	6
" 15	59	4	" 16	65	7
" 26	55	1	" 22	64	7
June 4 ice began to move	—	—	" 29	58	7
" 6 river clear of ice	—	—	May 6	65	5
Sept. 29 new ice forming on shore	0	0	" 13	62	4
Oct. 11 river frozen	0	0	" 20	56	4
" 16	7	2	" 27	—	—
" 23	11	2	Oct. 8	—	—
" 31	14	2	" 11	—	—
Nov. 7	20	2	Nov. 18	7	1
" 13	24	2	" 25	11	2
" 20	28	2			
" 27	31	3			
Dec. 4	34	5			
" 11	34	6			
" 19	37	6			
" 26	40	6			
Jan. 2, 1960	42	6			

Reports discontinued Nov. 1960 and observation site moved to Inuvik, N.W.T.

Table 5

## Inuvik, N.W.T. Ice Thickness Data\*

Observation Site — East Channel of Mackenzie River at townsite of Inuvik

Location — MID STREAM

Date 1965	Ice Thickness Inches	Snow Depth Inches
Oct. 29	10.0	01
Nov. 05	11.0	01
Nov. 12	17.0	01
Nov. 19	18.0	02
Nov. 26	21.0	02
Dec. 03	24.0	03
Dec. 10	27.0	03
Dec. 27	27.0	05
Dec. 24	33.0	04
1966		
Jan. 07	36.0	04
Jan. 14	39.5	04
Jan. 21	43.0	04
Jan. 28	46.0	04
Feb. 04	50.0	04
Feb. 11	50.0	04
Feb. 18	54.0	04
Feb. 25	54.0	04
Mar. 04	60.0	05
Mar. 11	60.0	05
Mar. 18	60.0	05
Mar. 25	62.0	05
Apr. 01	61.5	11
Apr. 08	64.0	06
Apr. 15	64.0	07
Apr. 22	64.5	08
Apr. 29	65.0	06
May 06	67.0	04

\*D.O.T. Meteorological Branch

\*Source: D.O.T. Meteorological Branch



In all four seasons the south and south-east winds hold a secondary role in percentage frequency, while other wind directions are relatively unimportant. North, north-west and south winds dominate during all seasons at McPherson. Strongest winds occur from the north-west in both January and February at Fort McPherson. North winds are especially frequent in the spring.

#### Mean Freeze-Up and Break-Up Dates 1946-55

	<u>Freeze-Up</u>	<u>Break-Up</u>
Fort Good Hope	November 12.8	May 15.0
Arctic Red River Settlement		
Arctic Red River	October 8.7	May 26.8
Mackenzie River	November 1.5	May 25.1
Aklavik	October 9.4	June 0.1
Reindeer Station	October 18.1	June 2.5

MacKay 1961, p. 1129

Since 1938, at Fort McPherson, variation in break-up dates have occurred with the earliest being May 20, 1948, and the latest June 3, 1949. The earliest freeze-up was October 19, 1956, and the latest November 8, 1956.

The harbour at Tuktoyaktuk usually breaks-up in the latter part of June 18-28, following ice dispersal in Kugmallit Bay. Further along the Arctic coast the break-up dates become progressively later, with break-up occurring at Cape Parry between July 17 and 23. Similar conditions pertain along the Yukon Coast.

#### Winter Ice Thickness

As might be anticipated, where an extensive distance exists on a north-south basis, there is a variation in ice thicknesses with an increase from south (3-4 ft.) to along the Arctic coast (5-6 ft.).

Ice thickness is an important factor in the abundance of muskrat in the delta area. Lakes and ponds which freeze to the bottom do not offer suitable habitat conditions.

#### The Seasonal Change

Generally speaking, the winter season extends from the middle of October to the middle of May. The mean daily temperature, maximum and minimum, indicate that December, January and February have very cold temperatures, while the remaining winter months have relatively warmer temperatures.

This is the predominant season in terms of human occupation. There is a tendency, on the part of investigators, to over-emphasize the shorter seasons in terms of human occupation and activities.

Spring comes late to the lower Mackenzie Region, being delayed by the slow break-up of ice in the Mackenzie River and the Beaufort Sea. June



is the first month with daily mean temperatures of 32°F. While the land quickly takes on aspects of spring conditions, ice persists on rivers and lakes for long periods, hindering travel in a land dominated by water.

The summer period lasts from mid-June to the end of August in the central zone of the region. The long, daylight hours compensate to some degree, for the long winter period. Days occur which are hot, and local residents become active in the evening periods when the sun is low on the horizon. Insects are a major deterrent to travel in July.

By late August and early September, changes in vegetation indicate the onset of autumn. The deciduous vegetation turns brown and loses its leaves. The small ponds and lakes freeze-up first, being followed by the creeks and rivers.

### River Ice

The thickness of ice affects the time of break-up. There is some variation in ice thickness, ranging from four to five feet in the Mackenzie Delta, to three feet on the Peel River at Fort McPherson. The degree of snow cover affects the freezing of ice. A greater snow cover results in a lesser thickness of ice. The Peel River Valley is protected by the Richardson Mountains from prevalent north-westerly winds which sweep the Mackenzie and Arctic Red River valleys. (1) The earlier break-up of the Peel River may result in flooding at Fort McPherson due to formation of ice dams.

Break-up is of major importance, since it permits water travel and eases the methods of transportation. Conditions of break-up also affect the spring muskrat hunt, which is of major importance to the delta trappers. Flooding may restrict or render difficult spring muskrat hunting activities as occurred in 1961-62.

Freeze-up is restrictive in the sense that it puts an end to water transportation. The rate of freeze-up is of importance with respect to autumn fishing.

### Soils

As may be expected, due to various factors (climate, parent material and other physiographic controls etc.), there is a considerable variation in soil types to be found in the region. These range from the poorly-developed Arctic tundra soils, through the deltaic alluviums and silts, to the weakly-developed podzols of the sub-Arctic regions. All indicate immaturity and are affected by the presence of continuous permafrost located at varying distances below the surface.

To attempt to outline available soil profiles in the region, in detail, is beyond the scope of this report. Soil conditions are, of course, of major importance in the vicinity of settlements and numerous studies in connection with construction projects are available. For example, the gumbo-like consistency of wet silts at Aklavik has been a continuing problem with respect to settlement road development.

The depths of organic matter accumulated in the ground surfaces ranges from 0 to 11 inches, depending on the location, with an increase from



north to south. Both Fort McPherson and Aklavik are located on old deltaic formations and site tests have revealed beds of silt, alternating with fine sands, interspersed with organic matter and ice lenses.

The work of Leahey, (1947 pp. 458-461), and Day, (1960 pp. 226-233), and others, has provided us with specific samples of soil profiles from the region.

Indirectly, the soils play a rather significant part in human utilization of local resources as an integral part of the ecosystems. Direct utilization of soils by man is largely predicated by climatic factors, including permafrost.

### Crude Minerals For Construction Purposes

The northern half of the lower Mackenzie region is well endowed with gravel and sand deposits, available from esker and morainic formations. In general, these are not strategically located in respect to human utilization, being located some distance from the settlements. For example, at Tuktoyaktuk in 1966, a source of gravel for road construction was located on an island a short distance from the settlement, but had to be transported to the settlement by boat, a costly process.

At Inuvik, large gravel deposits just south of the settlement, have been extensively used for road construction. Organic materials and soil preclude their use for building construction purposes unless they are thoroughly washed and sorted. The Inuvik airport is located on bedrock with crushed rock being used as a foundation.

Aklavik and Fort McPherson are located in areas which are lacking in readily accessible gravel deposits. In the past, gravel has been hauled from Point Separation to both localities at exorbitant costs of 20-35 dollars a ton. Local soft shales have been used at Fort McPherson for road construction with poor results, while at Aklavik, slabs, willows and small quantities of sawdust, have been used in attempting to provide road foundations. In 1966, gravel from the Inuvik deposits was hauled by barge to Aklavik.

Commercially usable kaolin clays have not been located in the region, although a white resident at Inuvik has experimented with clay deposits uncovered in glacial drift south of Inuvik.

### Vegetation

The region may be divided into three broad vegetation zones. The Arctic tundra, the taiga and the boreal forest zones. The treeline crosses the region from south-east to north-west. The major controlling influence is climate and the vegetation is an expression of environment features, such as exposure to, or protection from, winds, instability of soils under constant permafrost conditions and low air temperatures. The general environment, particularly in the northern half of the region, is precarious for forest growth and there is evidence, (MacKay 1963), that the treeline has fluctuated in the past.

The Richardson Mountains exert considerable effect on the treeline, which extends far southward, to just north of the Peel River, as its juncture



with the Bonnet Plume River.

In the boreal forested zone, in the southern part of the region where the permafrost table is not high, as on some of the well-drained benchlands, white spruce (*Picea glauca*) attains sawlog size. On fine textured alluvium the growth of trees in poor and scrubby types of forest, composed of willows and alders with stunted white spruce and black spruce, (*P. mariana*), prevails. Aspen, (*Populus tremuloides*), and balsam poplar, (*P. balsamifera*), are not abundant. The usual position of poplars on upland sites is taken over by white birch (*Betula papyrifera*). There are great expanses of stunted black spruce in the more level, poorly drained terrain. In general, through the section, there is far more non-forested than forested land. However, excellent stands of spruce timber exist on the Arctic Red, the Snake and Peel Rivers. South of the region, excellent timber stands occur in the Hume and Ontonagon River areas.

East of the Mackenzie Delta true woodland occurs as far north as ten miles beyond 68 degrees north, and trends south-east and south-westward, to form a distinctive northern boundary between open woodland on the east and the Mackenzie Delta to the north.

Between the Mackenzie lowlands and the mountains along the Yukon-Mackenzie Boundary, an altitudinal transition takes place with a gradation from forest to alpine tundra.

Open, park-like stands of stunted white spruce alternating with patches of grassy or shrubby vegetation, or with rock barrens, are characteristic of the mountain slopes. On north and eastern slopes, the alpine fir (*Abies lasiocarpa*) is usual at the treeline transition to alpine tundra. At lower altitudes, on the north and eastern slopes, black spruce occurs either alone or mixed with white spruce. On more favourable sites white birch is found in association with white spruce.

The upper flats of the mountains support alpine tundra vegetation, grasses, sedges, lichens, mosses. Peat bogs and hillocks of sedge occur in moist depressions. Sheltered watercourses support willows, stunted poplar and spruce.

Black and white spruce are found on better ground in the river valleys as well as poplar and white birch. Willows are found in lower water levels and alluvial fans.

In the Mackenzie Delta proper vegetation is influenced by water levels. The lower slopes and channel banks usually support horsetails, sedges and grasses. These are succeeded by aquatic sedges, water vats, common horsetails and willow. Beyond the limit of annual flooding, alder thickets and balsam poplar occur. White and black spruce occupy higher ground, with stands of white spruce being larger than those of black spruce. The stands lack compactness and a lower horizon of willow alder thickets and grasses is found in the lower ranks.

There is, of course, a decrease in the occurrence of spruce northward, with a gradual restriction to "island" stands in broad expanses of willows, poplar and alders. These in turn diminish and give way to expanses of willows, poplars and alders in the Shallow Bay area, and



finally to the tundra of the Richardson, Ellice and other islands of the northern part of the Delta. An estimated 40 per cent coverage of the land surface is occupied by spruce in the south-east corner of the delta.

Broad expanses of willows and alders occur in the zone between Moose Channel and Shallow Bay. West of Tununuk to the eastern end of Ellice Island, willow, alders and poplars are also the dominant vegetation. Richards Island falls into the tundra vegetation zone.

Tundra vegetation occupies the area between Tuktoyaktuk eastward to Wood Bay. It is also found on the western Arctic littoral and occupies the coastal plain and the Arctic plateau, merging with alpine tundra on the north slopes of the Richardson. Scrub and tundra are found in a narrow belt from Kugmallit Bay, south to the Eskimo lakes and east of Richards Island. Here and there, the tundra vegetation is broken by scrub tundra, along sheltered water courses, as occur in the Blow and Kugaluk Rivers.

A large expanse of scrub willow and ground birch extends east of the mouth of the Kugaluk River to reach the south-west shore of Wood Bay. It also extends south between the Kugaluk and Anderson to 69°N. latitude.

Open taiga woodland exists in a wide belt from the Sitidgi Lake area eastward, to about ten miles north of Crossley Lake, and crosses the Anderson uplands before trending south-east. The Wolverine, Carnwath and Andrew Rivers are located in open woodland.



### III HISTORICAL ANTECEDENTS

#### Kutchin Indians

The Kutchin or Loucheux Indians, an Athapaskan speaking people, occupied a broad territory extending from the central Yukon River area eastward to the Mackenzie. The southern boundary included the headwaters of the Yukon River, while the northern boundary coincided with the southern slopes of the mountain ranges, fronting the Arctic coastal plateau.

The following Kutchin groups have been known since historical times: (1)

1. Mackenzie Flats (Nakotcho) occupying the Mackenzie River and southern Mackenzie Delta area.
2. The Peel River (Tatlit) occupying the Peel Plateau and southern Richardson Mountains.
3. The Upper Porcupine (Tukkuth) occupying the central portion of the Porcupine River Basin. These have merged in historical times with the Vunta Kutchin of Old Crow, as have Indians of the Rat River and Bell River areas.
4. The Tutchone Kutchin of the Ogilvie mountains and southern Eagle Plains. Remnants of this group centre around Dawson.
5. Kutchin of the Old Crow Range and the Old Crow River flats now centering at Old Crow.
6. Yukon Flats Kutchin and Chandalar River Kutchin (mountain Indians) McKennan 1935, 369).

#### Neighbouring Groups

The northern frontier of the Kutchin tribes was occupied by Eskimos of the tundra and Arctic littoral, while eastward the Hare occupied the Mackenzie Valley and western end of Great Bear Lake. There appear to have been friendly relationships between the Hare and Kutchin, as witnessed by the mixed group of Kutchin-Hare, noted by Petitot.

The eastern Kutchin were in contact with two sub-groups of the Hare Indians. These were the Katcogotine, big-arrow people of the Mackenzie plain and the western end of Great Bear Lake, and the Nelagotine, end of the earth people (Osgood, 1932, p.33) of the area north-eastward from the Mackenzie River to the vicinity of the Anderson, Iroquois and Carnwath Rivers. East of these two groups were three smaller groups of Hare Indians in the wooded area between the Anderson and Great Bear Lake.

South-eastward, the Nahanni Indians occupied the Mackenzie Mountains. Numerous small groups of Indians, the Tagish, Teslin, Kaska and others,

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(1) Osgood (1932) established the Kutchin groupings used in this report.



occupied the southern Yukon and were neighbours of the Tlinkit Indians. Westward Central Alaska was occupied by the Tanana and Koyukon Indians.

Hardisty (1866) emphasized the trader role of the Loucheux (eastern Kutchin) with various Indian groups in the north-west.

Historical evidence points to trade with the Eskimos as well. Jenness (1932 p. 403) speaks of petty wars among Kutchin groups and considerable historical emphasis has been placed on Kutchin-Eskimo strife. Many older Indians of Fort McPherson speak of the Eskimo days. In local folklore, there is a tradition of hostile mountain Indians, presumably the Nahanni, to the south.

The Kutchin, encountered by early explorers and fur traders, had apparently adapted to their own use, certain customs and skills of their neighbours (Jenness 1932). Facial tattooing, clothing and implements (bows and dogsleds) showed similarities to those of neighbouring Eskimo groups. The dentalium for currency and beading were coastal in origin and indicated extensive trade with other Indian groups to the west and south-west.

#### The Subsistence Cycle among the Kutchin

Primarily hunters, the Peel River and the Rat River Kutchin spent a major portion of the year in the mountains and plateau areas hunting caribou and sheep. Caribou could be killed in large numbers by use of the surround and snares. Also, caribou skins of late summer and autumn, were more easily utilized for clothing in comparison to heavier moosehides. Moose were relatively scarce.

The Mackenzie flats Kutchin had access to caribou on the east side of the Mackenzie Delta in the taiga-tundra transition zone, during the course of the autumn and winter.

Fish were an important food source during the summer when caribou had migrated northward into Eskimo territory. Fish were dried and rendered to provide food for autumn and early winter use. The Peel and Rat River Indians customarily moved to the larger rivers in the late spring to concentrate on the summer fish runs. The Mackenzie Flats Kutchin appear to have placed greater reliance on fish and were less nomadic than the Peel and Rat River Indians.

#### The Mackenzie Eskimos

Anthropologists have generally grouped the Eskimos of the region under the name of Mackenzie Eskimos, including Eskimo groups encountered in the Mackenzie Delta, Eskimo Lakes and Anderson River drainage, as well as along the coast. Traditionally, a distinction has been made between nunamiut (inland) and remiut (coastal) peoples. Stefansson (1913) stated the Eskimo of the Delta proper did not hunt larger sea mammals such as white whale. In contrast, it is known the Delta Eskimos were readily attracted to the coast during the whaling era of the late 19th century.

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MacNeish (1954) during the course of archaeological work along the Arctic littoral uncovered evidences of the Cape Denbigh phase and Thule cultures along the coast.



The tundra area within the region is not overly extensive, and Eskimos in the Delta region and on the tundra, had ready access by umiak and kayak to the coast, as did the Eskimo groups on the Anderson River. It seems possible that extended family groups were relatively fluid in seasonal movements and that some families traditionally hunted caribou and fished at favourable locations inland, while others devoted greater efforts to hunting sea mammals. (1)

Caribou were seasonally accessible to groups both on the coast, and inland. Whaling camps were located at Shingle Point, King Point, and Kay Point, Kittigazuit, Atkinson Point and elsewhere. When Richardson visited Atkinson Point in 1826 and 1847 it was the site of an important Eskimo encampment with a fluctuating population of about 500. Sealing was also carried out from these locations. Russell (1889) found Eskimo groups at Warren Point, Phillips Bay (Tikara) and Herschel Island and mentions a deserted winter camp at Shingle Point. The coastal locations all offered certain natural advantages such as protected bays, access to fresh water, fish and fuel sources, etc.

Both inland and along the coast fish was a staple resource. Occupation of the delta proper was based primarily on the availability of fish and also the caribou herds in the surrounding higher country on both sides of the delta. Waterfowl as well as small mammals were important.

Unfortunately, relatively little material is available to give a detailed analysis of Eskimo occupation of the region prior to recent historical times. Explorers and travellers have given only sketchy accounts of indigenous groups.

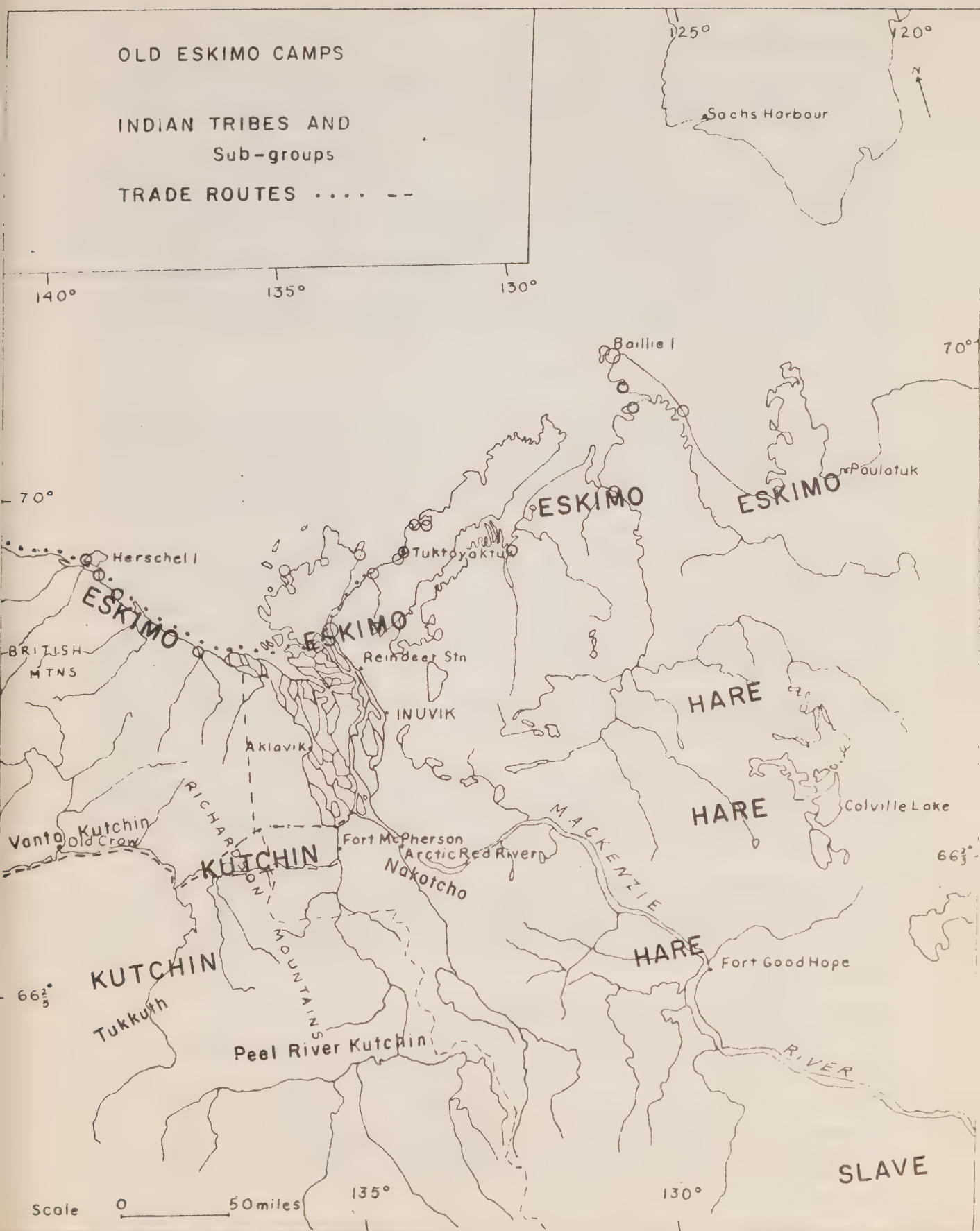
Westward, there appears to have been a clear division of Eskimo groups into coastal and inland groups. The Arctic lowlands become more extensive north of the Brooks range. Within the region under study, the tundra margin, between the Arctic littoral and the woodlands, is less extensive, and travel between the coast and woodlands would require only a short duration, even using the most primitive means. Also, Indians occupied the woodland areas in sufficient numbers to present some threat to permanent occupation.

While the Eskimos of the delta and Arctic coast, from Demarcation Point to Cape Bathurst, have been broadly grouped under the name Mackenzie Eskimos, localized groups had different names. The Kikiktaruzmiut (people of the island) hunted in the Herschel Island area, west of the delta, and were neighbours to the Tikixtazmiut of Barter Island (Spencer 1959 p. 8). An Eskimo group in the vicinity of the Eskimo Lakes, is known in local folklore as the Inuktuyut. This was a group that migrated eastward prior to the appearance of explorers. Weyer (1932) has labelled the groups, in the vicinity of Kugmallit and Liverpool Bay, as Nuvorayk Eskimos. The earlier writers, such as Harris (1905 - 1906) made a clear division between Kogmolloks and Nunamiuts, the Nunamiuts being recent incomers from Alaska.

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MacNeish found evidence of early inland houses containing only caribou remains which may indicate a distinctive inland culture.







### Prehistoric Trade Routes

A number of anthropologists and historians have recorded the existence of trade routes extending from Siberia, across the Bering Strait, and into America. One route has been tentatively mapped from Point Barrow eastward, as far as Barter Island and Herschel Island. Of the two locations Barter Island appears to have been the more important, attracting Indians and Eskimos for summer trading festivals. The tundra littoral was not entirely foreign to Indians accustomed to caribou hunting on the alpine tundra of the northern mountains. North flowing rivers such as the Mackenzie, Colville and Firth were conducive to trade. The other major trading route was along the Yukon and Porcupine Rivers and involved inter-group trading between Indians groups. The Vunta Kutchin were active traders with the Peel and Nakotcho Kutchin and with coastal Eskimo groups. Kittigazuit appears to have been, from time to time, a centre for Eskimo-Indian trade.

Stefansson (1913) indicated the variety of trade articles used as mediums of exchange. The main eastward exports of the Bering Strait communities were Siberian goods, beads of native stone and ivory ornaments. At Nirlik in the Colville River delta, the Barrow Eskimos traded Siberian items and a wide range of goods resulting from sea mammal hunting. At Barter Island, they traded the same kind of articles with the exception of the produce of sea mammal hunting. What they chiefly received were stone lamps and pots from the Mackenzie people, wolf and wolverine skins. The present day scarcity of soapstone in the region would seem to indicate the Mackenzie Eskimos secured their stone supplies from further east. The Indians from south of the mountains, traded chiefly in the type of furs plentiful in the Hudsonian zone.

There was also an extensive trade between the Kutchin for the wares of the coastal Tlinkit to the south-west.

There were secondary interests in trading. It provided an opportunity for the exchange of news and festivals. Records indicate that information concerning explorers in the Bering Strait, was known to the Mackenzie River Eskimos through primitive communication between scattered groups.

The establishment of trading posts, both in Russian Alaska and British North America, largely ended inter-group trading, particularly along the Yukon and Mackenzie River drainage systems. The cessation of Arctic coastal trading appears to have taken place more gradually (Anderson 1913).

### Advent of Explorers and Fur Traders

Exploration of the region begins as a northward extension of the fur

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Petitot's map *Carte Du Basin Mackenzie dressée de 1862-1873* shows Tariormiut in the vicinity of the Eskimo Lakes and Kugmallit Bay. Kraksitormeor in the Anderson River Valley and Krangmalavit in the Liverpool Bay area while Krangmalavitit shown in the Cape Bathurst area.



trade. It was rapidly followed by exploration for political reasons. The activities of the Russians in the North Pacific and Bering Strait had been of some concern to English imperial ambitions. Also the Northwest Company and the Hudson's Bay Company had bitter disputes with the Russian-American Company.

### Setting the Historical Stage

There was a rapid expansion of fur posts in North-western America in the late eighteenth century, arising out of competition between the Northwest Company and the Hudson's Bay Company. In 1789, the Northwest Company established Fort Chipewyan on Lake Athabaska. Fort Chipewyan was the departure point for Alexander Mackenzie's expeditions. Mackenzie explored the length of the great river draining northward from Great Slave Lake to the Arctic seas.

He encountered two small fish camps of Indians at about 67°N. latitude. Mackenzie's journey indicated untapped trading potentials along the river. Subsequently, the Northwest Company established a fur post at Lac La Martre in 1793. This was followed by the establishment of Fort Simpson in 1804 on the Willowlake River near its juncture with the Mackenzie. This post was re-established in 1824 at the juncture of the Liard and Mackenzie Rivers.

The Northwest Company hoped to establish contact with Hare, Kutchin (Loucheux) and Eskimos.

In 1806 Fort Good Hope was built at the mouth of the Bluefish River just above the Ramparts. In 1823 the post was re-established at latitude 67° 21'N. The move was for the convenience of the Kutchin, but food proved to be scarce in the vicinity and in 1827 the post was relocated on Manitou Island. Severe flooding led to the fort being finally located at latitude 66° 16'N., its present location.

Meanwhile, the Russians were actively trading to the west. The establishment of Russian outposts and a desire to make contact with the Eskimos on the part of Hudson's Bay Company and the Northwest Company, prompted the northward establishment of fur posts in Canada.

The Northwest Company and the Hudson's Bay Company joined forces in 1821, under the title Hudson's Bay Company. This gave some impetus to more orderly establishment of the fur trade in north-western Canada by reducing rivalry and inevitable conflicts.

The north-flowing Mackenzie River facilitated increased expansion of exploration and fur trade. In following the Mackenzie's route, explorers passed through the hunting grounds of various Indian groups, Slave, Hare and Kutchin Indians in the forested zones and finally into Arctic coastal areas inhabited by Eskimos groups.

There appears to have been a continuing enmity between the Kutchin and the Eskimos. The Kutchin were determined to prevent the Eskimos from reaching the Fort Good Hope post. There appeared to be good reasons. The Kutchin traded with the Eskimos from time to time, and wanted to maintain a middle-man position between the Eskimos and the traders. Also, there was strategy in preventing the Eskimos from securing guns.



Trading parties frequently became raiding expeditions when there seemed to be a numerical or other strategic advantage. There was an ambivalence of purpose in crossing territorial boundaries. (1)

Exploration and the fur trade were mutually beneficial. Fur posts were established as the result of exploration. The activities of traders were often, in themselves, exploratory, and at times preceded the work of explorers. Explorers used established fur posts as supply and reconnoitering bases.

In 1825-26 Sir John Franklin's second expedition wintered near Great Bear Lake and reached the mouth of the Mackenzie River. A party under Franklin explored the Arctic coast west to Return Reef, beyond Herschel Island. Here they encountered hostile Indian groups on the lower Mackenzie and hostile Eskimos along the coast.

Westward in 1838, Vasali Malakoff, Russian explorer and adventurer, ascended the Yukon River reaching the small Indian village of Nulato. Along the lower reaches of the Yukon he encountered the Koyukon and Tanana Indians. He was following an established aboriginal trade route. St. Michael's in Norton Sound, and Unakleet, were centres of Russian activities in western Alaska and provided a base for Russian exploration and the fur trade.

Russian goods found their way eastward along Indian trade routes of the Yukon and Porcupine river systems. Petitot, a missionary-explorer of a later age, found a kettle of Russian vintage among the Hare Indians north of Great Bear Lake. It is not clear whether this had been secured by the Yukon, Porcupine, Rat River trade route or the Arctic littoral, since the Hare Indians were close to both on the Mackenzie and Eskimo groups on the Anderson River. It seems likely it came by the Porcupine Rat River trading route.

The existence of the Peel River was known to fur traders through the exploratory work of Franklin. In 1839, Dease and Thomas Simpson carried out an exploratory trip to the lower Peel and reported fur in abundance. In the same year John Bell, a Hudson's Bay Company employee at Good Hope, made an exploratory trip via the Mackenzie River to the Peel River. The company was anxious to open up the country to fur trading. While following the Peel, he encountered Kutchin Indians assembled at Fish Head Trap for the summer. These were mountain Indians, who had spent the winter caribou hunting in the mountains, returning to the upper Peel for summer fishing.

Game and fur signs were abundant along the Peel and the country seemed to be promising. In 1840, a Peel River post was established on the lower Peel, and shortly thereafter re-established at its present location because of more suitable terrain. It appears that an upriver location was chosen to avoid contact with the Eskimos. Later, in 1846, Bell crossed the mountains and reached the Yukon River.

For some decades, Fort McPherson was predominantly a meat post, with trade in dried meat for the re-supply of other posts in the Mackenzie Valley.

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(1) The north-south boundaries between Eskimo and Indian groups fluctuated according to trading or raiding activities.



The Indians were nomadic hunters. Caribou and sheep were available in the mountains, and orientation of the Peel River Indians to the fur trade was a slow process. Because of this, Fort McPherson only gradually assumed importance as a fur post.

To the west in 1842, L.A. Zagoskin, a Russian explorer, ascended the Yukon to the rapids just downstream from the present-day town of Rampart, passing through the territory of the Koyukun and Tanana Indians. The Russian fur trading activities were extended to the Indian village of Nucklukayette on the central Yukon River.

In 1845, Bell discovered among the Indians he encountered on the Rat River, beat-iron kettles of Russian manufacture traded from the Russians or Indian middle-men to the west.

In 1847, La Pierre House was established by the Hudson's Bay Company on the Bell River, by Alexander Murray Hunter from Fort McPherson. Fort Yukon was established in the same year on the Yukon at the mouth of the Porcupine, by Alexander Hunter Murray. The latter post was to be the furthest outpost of the Hudson's Bay Company in the north-west. Whympers (1868), indicates that Indians from all over the interior of the Yukon and Alaska, congregated at the post for trading. Rat River Indians were among those who travelled to the post to trade and visit.

Innis, (1951, p. 297), tells us dogs and supplies of birchwood for sleighs, were imported to the Peel River country to facilitate transportation between Fort McPherson and La Pierre House.

The records indicate that La Pierre House was both a fur and meat post. Furs and dried meat were traded by Kutchin hunting in the Porcupine, Rat and Peel River areas. The meat and furs were freighted by dog sled to Fort McPherson and thence along the Great Slave Mackenzie Route. La Pierre House also served as a half-way post between Fort McPherson and Fort Yukon.

Famine occurred, from time to time, in the Mackenzie Valley areas, as game in the vicinity of the posts, suffered depletion through the introduction of guns, as well as undergoing the usual periodic fluctuations. McClean, (1849, 11, p. 248), stated that cannibalism, arising out of famine among Slave and Hare Indians was more commonly known than any other.

The Kutchin in Canada were estimated to have numbered approximately 3,000, prior to white contacts (Zazlow 1957, p. 540). This included groups inhabiting the central Yukon and Mackenzie valley areas.

A Hudson's Bay Company survey in 1857, gave a population of 337 Indians for Fort McPherson and La Pierre House.

In 1848, the explorer Richardson, encountered large numbers of Eskimos at Kittigazuit congregated there for whaling and summer festivals. Stefansson, (1913, p. 452), estimated the 1848 Eskimo population as roughly 1,000 at Kittigazuit and 500 at Point Atkinson, with a total population exceeding 4,000 for the entire Mackenzie Delta area.

In 1849, Lieutenant W. Pullen and W. Hooper of the American navy, followed the Alaska coast from Wainwright to the Mackenzie delta. They avoided



encounters with apparently hostile Eskimos along the north Alaskan coast, and finally reached Fort Simpson, after having stopped at Hudson's Bay Company posts along the lower Mackenzie, including Fort McPherson.

In 1857, Chief Factor Roderick MacFarlane, a Hudson's Bay Company man travelled north-eastward from Fort Good Hope to the Anderson River, by the Iroquois and Carnwath Rivers. It was common knowledge at Fort Good Hope, that the north-east was the hunting ground of a group of Hare Indians. Also, Eskimo groups were known to exist in the region. MacFarlane encountered various Hare Indian encampments on the Anderson. Along the lower Anderson, he encountered hostile Eskimos. MacFarlane was forced to turn back and returned to Fort Good Hope without having reached the Arctic coast.

During the 1840's and 1850's, Indian-Eskimo hostilities flared into spasmodic, open warfare. Eskimo bands occasionally raided up the Peel River and, in 1850, a fight occurred between the Kutchin and the Eskimos at Point Separation.

While the lower Mackenzie was being opened by explorers and fur traders, missionaries had been establishing missions on the upper Mackenzie and extending their missionary activities northward. The first Anglican missionary arrived at Fort McPherson in 1858. A permanent mission was established by 1860.

In 1859 Father Grolier accompanied the fur brigade to Fort Good Hope and established a mission near the post for the Hare Indians. In 1860, he briefly visited Fort McPherson.

Meanwhile, Roderick MacFarlane had not given up hopes of opening the Anderson River country to trade. Fort Anderson was established in 1861 and remained in operation until 1865. There was an estimated population of 600, (Eskimos and Indians), in the Anderson River area. A sketch, reported to be of Fort Anderson, shows a well-fortified post on the wooded banks of the Anderson. Periodically, epidemics swept the length of the Mackenzie River and a severe scarletina epidemic may have contributed to the closing of the post in 1865, through decimation of Indian and Eskimo populations.

The post was extremely difficult to re-supply from Fort Good Hope. Re-supply was effected by ox team and boat from Fort Good Hope, a very painstaking procedure in the summer when insects abounded.

Westward, a long interval passed in recorded Russian exploration of the Yukon River. A number of Russian posts had been established on the lower Yukon. In 1863, Ivan Simonsen Lukeen followed the Yukon to the mouth of the Porcupine and arrived at Fort Yukon the Hudson's Bay Company fort which had been established years earlier in 1847.

In 1867, Alaska was purchased by the United States and, in 1868, a United States Army Captain took over Fort Yukon.

Communications were of considerable importance to the factors and men of the fur posts. An elaborate express system to facilitate the business of supply, was developed by the Company. Innis, (1927, p. 316), gives us an example of a dog team express leaving Fort Simpson on January 22



and arriving at Fort Yukon on March 24 of the same year, via MacDougall's pass and the Rat River.

The political intricacies, the long distances, and upstream exploration, precluded easy Russian penetration of Alaska, similar to that which occurred along the breadth of the Mackenzie River. Also, re-supply systems of the Russians were less well-organized than those of the Hudson's Bay Company. Relations with the Indians were often difficult as witnessed by the massacre perpetrated by Indians at Nulato.

In 1865, Father Emile Petitot explored the area around Great Bear Lake and travelled north, nearly to the mouth of the Anderson, encountering Hare Indians and Eskimos along the river. He also explored the region of the Eskimo Lakes.

During the latter half of the nineteenth century, Eskimo groups traded at Fort McPherson. The redoubtable John Firth, who went to McPherson in 1872, and became the factor of the Hudson's Bay Company in 1893, discouraged hostility between the Kutchin and the Eskimo. He was assisted by missionaries in the later years. The Eskimos, while frequently truculent in their home territory, were well behaved within the immediate vicinity of the post.

Anglican missionaries were becoming active in the lower Mackenzie River. In 1866, an Anglican missionary passed through Fort McPherson on a roving commission. In 1868, Reverend Robert MacDonald of the Church of England was travelling extensively from Fort Yukon to the Mackenzie Delta in what is now the north-central Yukon. Whympier, (1868), the American explorer, met Reverend MacDonald at Fort Yukon.

To the west, despite the fact that Alaska had been purchased by the United States in 1867 from Russia, trading continued between Siberia along the Arctic coast of Alaska and Canada. The north-west region had never been effectively occupied or settled by the Russians. Nevertheless, they stimulated inter-tribal and inter-group trading, and furs from north-west America reached Siberia through native middlemen working along the Arctic coast.

The difficulties of re-supplying La Pierre House from Fort McPherson, prompted exploratory work by James MacDougall in 1872, between La Pierre House and Fort McPherson. The portage route, between Fort McPherson and La Pierre House, could be covered in four to five days of good weather in the summer. It was hoped a feasible cart route could be found to replace the winter freighting by dog sled. MacDougall records the fact that La Pierre House was still primarily a meat post. Dried meat as well as furs were still being shipped out to Fort McPherson.

In 1876, the Church of England erected permanent mission buildings at Fort McPherson. Supplies for both missions and for the fur posts were carried by York boats, a laborious and time-consuming method. The confluence of the Arctic Red River and the Mackenzie had long been a favourable fishing ground of the eastern Kutchin Indians. An outpost of Fort McPherson was established at this location in 1895. Ice conditions on the lower Mackenzie resulted in the use of this location as a way station by the Hudson's Bay Company.



There were limited opportunities for employment and these were usually taken by whites and half-breeds experienced in the fur trade. Also, the movement of caribou herds in the Richardson Mountains and the seasonal availability of game, encouraged a semi-nomadic existence. Eskimos of the Mackenzie Delta traded at Fort McPherson.

Ogilvie in 1871 estimated a population of thirty-six whites and four hundred and ninety-two Indians for the Fort McPherson and La Pierre House areas. The white population was, of course, clustered at the posts either in the employ of the Hudson's Bay Company or engaged in missionary activities.

La Pierre House declined in importance following the purchase of Alaska by the Americans and the take over of Fort Yukon, and was abandoned with a decrease and shift of Indian populations.

In 1890, Roman Catholic missionaries arrived at Fort McPherson but the Anglican mission was well-established with a church and school. Finally, in 1896, the Roman Catholics moved, with their converts, to Arctic Red River, where they established a mission.

#### The Period 1888 - to the present

Early developments in the Lower Mackenzie region are of interest for historians, geographers and economists. However, the period between 1888 to the present is most interesting in terms of the contemporary situation in the Lower Mackenzie region. It is impossible to more than briefly sketch in the events which lead up to the present time.

#### Whaling

During the era of fur post and mission establishment in the lower Mackenzie region, changes were occurring in the Bering Strait area. The American whaling ship, Superior, passed through the Bering Straits in 1848. In 1854, the first American whaling ship visited the present site of Point Barrow while searching the Bering Strait for whales.

At the end of the Civil War in 1865, baleen and whale oil had risen to a high price and unstable value. The whaling fleets were nearly all based in San Francisco.

In 1881, following hostilities by Eskimos in retaliation against whalers, the United States War Department sent a ten-man detachment to Point Barrow. This appears to have marked the end of hostilities on the part of Alaskan Eskimos.

The whaling era in the western Arctic resulted in catastrophic repercussions for Eskimos of north-western Alaska. Froelich Rainey, (Milan 1964, p. 20), believed the aboriginal population to have numbered 10,000 in 1850. By 1900, the population had been reduced to 3,000 owing to the introduction of disease on the coast and shortages of meat in the interior. The slaughter of caribou in coastal areas, resulted in shorter migrations and created a general food scarcity for nunamiut groups in the Kobuk and Noatak River areas. Inland groups moved into coastal areas or moved eastward in search of caribou.



Groups of nunamiut Eskimos reached the lower Mackenzie region in 1889. This involved a distance of approximately four hundred miles, not an extreme distance by dog team.

Prior to 1888, the whalers had confined their activities to waters off the north Alaskan coast from Point Barrow to Point Hope, and in the north-eastern Siberian water. In 1888, the Newport, an American whaler out of San Francisco, probed the Beaufort Sea eastward from Point Barrow to Herschel Island.

The long distances involved in whaling in the Beaufort Sea, together with the short whaling season, were incentives for the establishment of winter depots. In 1889, the United States Revenue Cutter, Thetis, was sent to Herschel Island to determine its position, with respect to the Alaskan Canadian boundary. Herschel Island offered a safe anchorage for whalers hunting in the Beaufort Sea and, in 1889, whalers wintered over at the island.

By 1893, most whalers had converted to steam, and wintering in the Arctic saved in expenditures of coal in the long, 4,000 mile re-supply trip, to San Francisco. In 1894-1895, fifteen vessels and 800 men wintered on Herschel Island.

A single whale might be worth approximately \$8,000 in bone, while the oil was worth \$1,000. As a result, during the period of the late nineteenth and early twentieth century, the bone was saved, while the carcass was set adrift.

The whalers supplemented their food supplies with fresh meat and fish. The Eskimos were encouraged to supply the ships with caribou meat, furs and whale bone, in trade for imported materials. In 1892, a group of Eskimos arrived at Fort McPherson with trade goods secured from the whalers and traded these with the Indians. The Indians also became involved in the meat trade. John Firth, the factor at Fort McPherson, on a trip to Herschel Island in 1896, observed seventeen La Pierre House Indians visiting Herschel to trade fresh meat and moccasins. The Eskimo trade at Fort McPherson declined during the whaling period.

Russell, (1889), found Eskimos and Indians using a coastal trade jargon which included Kanaka words. (1)

The whalers were inclined to be more generous in trading, and stocked a greater range of articles, including repeating rifles, which were not stocked by the company.

In order to bring some measure of control to the situation, Firth made arrangements to handle mail for the American whalers, using the Hudson's Bay Company mail service, in return for promises from the whaling captains to refrain from trading, but this proved to be an arrangement of short duration.

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(1) The polyglot whaling crews included Kanakas and Fijian whalers as well as representatives of almost every European nationality. A negro seaman, turned trapper, settled on the western Arctic coast east of Tuktoyaktuk and accidentally perished there.



Whaling ships occasionally wintered at Cape Bathurst and as far east as Langton Bay. The zone between Richards Island and Cape Bathurst was particularly favored for whaling.

Missionaries became aware of the riotous type of living indulged in by the whalers iced in for the winter at Herschel Island, and in 1892, Isaac Stringer, an Anglican missionary, went to Herschel Island and remained there until 1902. (1) The whaling captains contributed six hundred dollars to the cost of establishing a mission.

In 1903, the Northwest Mounted police arrived at Fort McPherson and went on to Herschel Island, to establish some semblance of law and order. Herschel Island became an important centre for the administration of law and order in the western Arctic.

The technology of Eskimo groups underwent a change. The nunamiuts, according to Harris, were most closely associated with the whalers, in comparison to Eskimo groups in the Kugmallit Bay and Anderson River area. (2) Schooners and whaleboats were secured in trade or loan. Rifles and ammunition were easily come by. A few whaleboats were secured by Indians and used at Fort McPherson and Arctic Red River.

It was a customary practise for whalers to recruit Alaskan Eskimos as guides and hunters. Whaling was an occupation to which the coastal Eskimos of north-western Alaska were readily adaptable, having traditionally hunted whales by umiak. At Herschel Island, the nunamiuts were recruited as meat hunters in the tundra mountain country, west of the Mackenzie Delta.

In 1906, Harris (1908, p. 54), encountered five steam-whalers at Herschel Island, each with fifty men. He indicates the extent to which hunting of caribou was being carried on by nunamiut Eskimos, both for their own needs and to supply the whaling ships. A scarcity of caribou was occurring in the areas both west and east of the delta. John Firth, the factor at Fort McPherson, spoke of a scarcity of deer in the mountains. It appears that hunting on the coast was affecting the food resources of the Peel River Kutchin, through diminution of migratory, barren-ground, caribou herds.

The whaling era in the region, ended with a depletion of whale stocks and a failing market. Substitutes had been found for baleen and whalebone, and whale oil had been superseded in importance by petroleum. According to Anderson, (1913), whalers last visited the region in 1912. The whalers were replaced by trapper-traders using small schooners and plying the western Arctic until the 1930's. Herschel Island became a fur, rather than a whaling entrepot.

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(1) A few individuals who jumped ship in winter or became lost, died on the tundra south of Herschel Island. Others became involved with native groups. Angus Graham mentions in his book encounters with white whalers living with the Eskimos. Harris called the resident Eskimos Kogmollocks as against the immigrant nunamiut group.

(2) The last moosehide boat constructed by Kutchin Indians on the Peel River was used in 1919-1920. Moosehide boats gave way quickly to canoes and scows.



The Stefannson - Anderson western Arctic expedition took place between 1908-1911. While major scientific research was directed towards a study of the Copper Eskimos, Stefannson published in popular form, accounts of his travels in the lower Mackenzie region. His prolific writings have overshadowed the value of Harris' work.

#### Developments in Water Transportation

Until 1886, the supplies for Fort McPherson were transported down the Mackenzie by York boats and scows. These were replaced by the use of boats powered by steam and the Wrigley was used on the Mackenzie. Steam vessels continued to be used until 1907, when Hudson's Bay Company sternwheelers came into use. Passenger and freight services were improved. The use of sternwheelers continued until 1947, when diesel tugs came into use.

Supply boats on the Mackenzie River system provided a means of access for a number of adventures and travellers. Others followed the downstream course of the Mackenzie by small boat, canoe and barge to the Mackenzie Delta.

The whaling era had established the feasibility of using the north Alaskan coastal waters as a transportation route into the western Canadian Arctic, while the Mackenzie River provided access from western Canada. A number of small settlements - Fort Simpson, Fort Norman, Fort Good Hope - were well established along the Mackenzie and these could be used as stepping stones in following the river. The Peel River system was a minor access route, used by prospectors and trappers venturing into the territories from the Yukon.

#### The Yukon Gold Rush Era 1897-1910

During the gold rush era, prospectors followed the Mackenzie River to Fort McPherson. These were prospectors attracted from the eastern United States, Canada and Great Britain. New Chicago, later known as Little Chicago, on the Mackenzie River, between Fort Good Hope and Arctic Red River, received its name during this era. Groups of prospectors proceeded up the Rat River to a location which they called Destruction City. Here, they broke up their scows and barges, in preparation for the over-land trip up McDougall's Pass, into the Bell and Porcupine drainage systems on the west side of the Richardson Mountains. Other prospectors proceeded up the Peel River into the Wind and Hart River systems. A winter camp was established at Wind River. Relationships with the Indians were usually good. John Firth, the factor at Fort McPherson, complained about the Indians being kept from trapping, through hunting and working for the prospectors. Stefannson speculated that, although no numbers were kept, many gold seekers passed through the lower Mackenzie region.

Many of the Peel River Indians moved to the Dawson area, where they supplied meat to the miners or workers, in the gold camps. For the majority this was a temporary activity, and with a dwindling in gold mining activities and a depletion of game, they returned to the Richardson Mountains and the Peel River. Many continued to make occasional dog team trips to Dawson. The last reported trip was made in 1956. A diary of a trip made in 1919, indicates that the trips to Dawson were in fact extended hunting



and trapping trips with the ultimate destination being Dawson. (1).

The trip made in 1919 began after Christmas and Dawson City was reached on April 11. Caribou were hunted and marten trapped along the way. At Dawson the Indians received better returns for their furs than at Fort McPherson.

During the gold rush era in the Yukon, the Peel River Kutchin were exposed to the use of money and wage employment.

The period following the whaling and gold rush eras was one of re-orientation for the people of the region. The subsistence patterns had been effected by a decline in the caribou herds. Trapping became the major economic activity on the Arctic coast and in the delta proper. A number of small trading operations were established by individuals who had entered the country during the whaling era. A competitive trader was operating at Fort McPherson. In 1912, Andrew Stewart of Fort McPherson, was sent north by Firth, to establish a small post at Pokiak Point. This post was subsequently re-established at Aklavik (1924), where an Anglican Mission had been established and a rival trading company was in operation.

During World War 1, fur prices in the north rose to an all-time high and a number of adventurers filtered down the Mackenzie to become trappers, and trapper-traders, in the Mackenzie Delta. Fur prices rose steadily between 1915-1920.

The Eskimos, who had attained prosperity during the whaling era, turned to trapping both in the delta and along the coast. Alaskan Eskimos remained in the country and inter-married with local Eskimos. Some whites formed temporary liaisons with native women, while others married and established families, staying in the country to trap and trade. (2)

Rasmussen, (1927, p. 298), travelling across the western Arctic coast in 1922, briefly indicates the degree to which whites and Alaskan Eskimos had penetrated into regions occupied by indigenous Eskimo groups. Travelling from the east, he encountered the first Alaskan Eskimos at Cape Lyon. Elsewhere, he mentions the Hudson's Bay Company posts at Baillie Island, Kittigazuit and Shingle Point. The names of trapper-traders, such as Jim Crawford, Niels Holm and Captain Fritz Wolki are also mentioned.

Rasmussen further states that by the 1920's the two groups, Indian and Eskimo, had little difficulty working together. When the hostels opened, Indian and Eskimo pupils were put together and were all made to learn

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- (1) In 1911, Inspector Fitzgerald and three other members of the Northwest Mounted police, perished from cold and starvation on a dog team trip between Fort McPherson and Dawson City, after losing their way and running out of food.
  - (2) The Areys, Klengenbergs, Wolkis and other Eskimo families in the region perpetuate non-native names, inherited from whites during the whaling and post-whaling era.



English so that today, the adult generations are able to speak to each other, even though they may not have shared the same cultural heritage.

### The Beginning of Federal Jurisdiction

Active political jurisdiction of the Canadian north by the Canadian government began in 1965, with the appointment of a Commissioner of the Northwest Territories, who was also comptroller of the Royal Northwest Mounted Police. Local political jurisdiction was to be the responsibility of the police in small settlements.

As provided by the Northwest Territories Amendment Act of 1905, a Council of four was named early in 1921 to assist the Commissioner. Also a branch of the Department of the Interior was organized for administration purposes. At the settlement level, the Royal Northwest Mounted Police handled administrative and legal matters. Active administration by civilian administrators was to occur in the late thirties in the lower Mackenzie region.

The discovery of oil in the Norman Wells area in 1920, precipitated a short-term boom and resulted in an influx of non-natives into the lower Mackenzie region. Some of these became trappers, while others drifted south again or moved into the Yukon.

### Treaties with the Indians

The increase of activities in the lower Mackenzie region prompted the initiation of treaties by the Canadian Government with the Slave, Hare and Kutchin Indians. Treaty number nine was signed by bands of Indians along the Mackenzie in 1921. Among the groups included in the treaty were the Kutchin of Fort McPherson and Arctic Red River. Under the terms of the treaty the Kutchin ceded to the Crown "all rights, titles and privileges" to their lands in Canada. The Indians retained their rights to pursue their usual vocations through the ceded territory, subject to government regulations. Confusion and distrust were to arise from the terms of the treaty, when trapline registrations were instituted in 1946, in the lower Mackenzie region.

Due to the increasing native-white competition for furs, the Dominion Government took steps to assist in maintaining the fur industry of the N.W.T., with the establishment of the first Native Game Preserves. Trapping in the reserves was confined to Indians, Eskimos, Metis and such white trappers as were already operating in the areas. The Peel River Preserve was established to safeguard the interests of the Kutchin in the Peel and Arctic Red River areas.

### The R.C.M.P.

During the first half of the twentieth century, the Royal Northwest Mounted Police, which later officially became the Royal Canadian Mounted Police, (1920), established law and order in the lower Mackenzie region. Reference has been made to the establishment of the Northwest Mounted Police at Herschel Island, to bring about a semblance of order during the boisterous whaling era. In 1922, a permanent barracks was established at Aklavik. A police detachment at Arctic Red River patrolled the southern half of the lower Mackenzie region. They aided in the establishment of



the Peel River Native Game Preserve and settled disputes between trappers. The Indians reported the activities of white trappers, who used poison baits or other illegal devices, to the police. The detachment at Herschel Island, (1903-1963), and a detachment at Cape Bathurst, Baillie Island, (1923-35), made summer and winter patrols along the Arctic coast. While law enforcement was the primary objective, many administrative functions were also carried out. In isolated areas they assumed responsibility for medical aid to indigenous groups and isolated white trappers. Their reports are the major source of information for the period, and have not since been duplicated by other administrative organizations.

In a region occupied by diverse ethnic groups and subject to boom and bust periods, during which numbers of whalers, prospectors, trappers and itinerant traders and adventurers moved through the region, the R.C.M.P. performed an important role in the total acculturation process through safeguarding the interests of Indian and Eskimo groups.

### The Missions

During the first half of the twentieth century, Anglican and Roman Catholic Missions were being established in the delta and along the Arctic coast. Fort McPherson had become a center of Anglicanism for the Peel River Kutchin, while Arctic Red River became the center of Catholic missionary activities among the Kutchin of the Mackenzie Plain. Itinerant missionaries of both faiths were travelling inland and along the coast. At Aklavik, the two missionary groups duplicated facilities for education and medical aid, following the establishment of an Anglican Mission in 1919, and a Roman Catholic Mission in 1924.(1) Mission hospitals were established by both groups at Aklavik in 1926.

A short-term Anglican mission was operated at Kittigazuit in 1908. An Anglican Mission was later established at Tuktoyaktuk in 1934, in keeping with the establishment of this settlement as a staging point for Arctic shipping and the attraction of Eskimos to the locality.

A Roman Catholic Mission was established at Cape Parry in 1936 and at Tuktoyaktuk in 1940. To some extent the Oblate Missions in the sub-Arctic and Arctic, have been colonizing agents, as occurred in the case of the Arctic Red River mission established in 1896, and the Stanton Mission in 1937. The Oblate missionary at Stanton, attracted five Eskimo families to the site, following the establishment of the mission. The Stanton mission post operated until 1955, when the Eskimos drifted away and the mission activities were transferred to Tuktoyaktuk.

The Anglican Mission concentrated on religious activities, the provision

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(1) In 1912, Anglican Missionaries are reported to have baptized 248 Eskimos.

In 1927, Thomas Umoak, a western Arctic Eskimo was ordained as a deacon. In 1934, he established himself in Tuktoyaktuk, building a log mission and a church.



of medical facilities and education. The use of outstanding men among native groups, as lay readers and ministers, became a traditional feature of church activities, and both Indians and Eskimos became lay readers and ministers in the lower Mackenzie region. The Anglican missionaries were less directly engaged in socio-economic activities, in comparison with the Oblate missionaries. There is no evidence that the Anglican missionaries became involved in fur trading. (1)

In addition to missionary activities, the Oblates also dealt in furs, which gave an added validity to the existence of small and scattered mission posts. In many respects, this was a service for isolated groups who had to trade elsewhere. The agricultural ventures of Aklavik, and fur trading ventures, are indicative, in many ways, of the industry of hard-working Oblate missionaries.

More recent examples of the Oblate interest in the total socio-economic environment are Colville Lake and Paulatuk.

### The Missions and Education

During the first half of the twentieth century, the missions assumed the responsibility for local education. As early as 1899, a small mission school at Fort McPherson received a school grant from the Indian Affairs Branch. A church of England School was built at Aklavik in 1926, and a residential school for Eskimo children was built at Shingle Point in 1929. The practise of sending the more promising Indian students to residential school at Hay River, Fort Resolution and Providence, began in the 1920's. Children did not return to their parents until their formal education ended after three or four years.

Schools in the lower Mackenzie region were staffed by missionaries and lay workers. The emphasis was placed on religion, reading, writing and arithmetic. Some attention was also paid to manual and domestic training and hygiene. Summer schools conducted at Fort McPherson, while the Indians were at the fort, attracted both children and adults.

The Anglican Mission and the Roman Catholic Mission established residential schools at Aklavik during the thirties.

In 1937, All Saints Residential School was opened by the Anglican Church at Aklavik, and the children were transferred from Shingle Point and Hay River. Shingle Point ceased to be a center of any importance.

In 1946, the Anglican Mission and the Indians at Fort McPherson, combined forces to build a day school. In 1947, this school was taken over by the Indian Affairs Branch. In 1951, a Federal day school was opened at Aklavik by the Northern Administration and Lands Branch of the Department of Mines and Resources.

The establishment of an Anglican Mission school at Tuktoyaktuk did not occur until 1947. This was a day school operated full-time in the community.

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- (1) The Anglican instituted fur tithing to support Church activities. This is still carried on and "Muskrat Sundays" are held yearly in Anglican Churches in the region.



In 1955, the Canadian Government took over all day schools in the N.W.T. The establishment of full time day schools became an important factor in increased settlement orientation of native groups, who wished to be close to their children.

### Health

As a result of increased traffic along the Mackenzie River and along the Arctic coast, epidemics periodically broke out in the lower Mackenzie region. In 1901-1902, forty-seven people died from influenza at Fort McPherson. Harris, (p. 81), speaks of a measles epidemic in 1902, which caused a serious reduction in the number of Kogmolloks. Again in 1927, a severe influenza epidemic broke out at Fort Smith and spread quickly to Great Slave Lake and north to Aklavik. The death toll among indigenous groups was reported to be high.

Medical facilities increased slowly in response to the pleas of missionaries, traders and police. The Anglican Church erected an eight-bed hospital at Aklavik in 1926. A Roman Catholic Mission hospital was also erected at Aklavik. In 1932, a government doctor was stationed at Aklavik and equipped with a motor boat for use as a travelling clinic in visiting bush camps.

Outbreaks of 'flu and measles occurred in the 1940's, and attempts were made by medical authorities at Aklavik, to meet emergencies in outlying camps.

A growth in medical facilities, the increased use of aircraft in meeting emergencies and a centralization of the population, have reduced the drastic effects of epidemics, which were experienced in the early twentieth century.

### The Introduction of Reindeer to the Lower Mackenzie Delta Region

In 1919, a Royal Commission was appointed by the Canadian Government, to study the possibilities of developing reindeer and musk-ox industries in the Arctic and sub-Arctic regions. The commission recommended, in 1922, that experimental herds of reindeer be established at selected areas in the north. W.B. Hoare of the Department of the Interior, examined wildlife conditions in the Mackenzie District between 1924-26. An extensive survey of areas in the western Arctic was carried out by A.E. Porsild, a botanist, from 1926 to 1928. Porsild examined the potentials of the Mackenzie delta area and in particular the tundra area, between the Mackenzie and the Anderson Rivers during 1927-28. A reindeer reserve of 6,600 square miles was established in 1933 east of the Mackenzie River. Porsild found that caribou were practically non-existent between the Delta and the Anderson River, and that the Eskimos in the vicinity of Tuktoyaktuk and Kittigazuit went inland only to fish on the Eskimo lakes.

### Trapping

The Mackenzie Delta with its abundance of muskrat, as well as other fur species, was particularly attractive to white trappers. The Kutchin of the Peel River were also becoming more dependent on muskrat, and made a practise of following the break-up of ice, during the spring hunt, as far as Aklavik, before returning to the Peel. Four hundred and thirty-five



Indians traded into Fort McPherson and Arctic Red River in 1921. Ten Indians were living at Aklavik. (1) There were eleven whites in Aklavik and twenty whites at Fort McPherson in 1922. In 1926, there were reported to be fourteen Eskimo schooners and ten white men with motor-powered schooners in the Mackenzie Delta area.

In 1928, the R.C.M.P., noted the northward movement of the Eskimos ahead of white trappers, who were establishing themselves in the delta area. The Indians were also exerting pressure on the trapping grounds. White trappers were active in the Anderson River country. (2)

A white trapper, who trapped in the late twenties and thirties, estimates there were one hundred white trappers in the coastal area between Herschel Island and Read Island. The area between Fort Good Hope and Point Separation was also occupied by white trappers.

White trappers also made forays up the Arctic Red and Peel River systems for marten and beaver. Indian groups hunting in the Snake River country from Fort Good Hope and Arctic Red River, encountered white trappers moving through the country trapping whatever furs were available, and bitterly complained about white trappers using poison baits. Yukon trappers were active in the south-western part of the region. A small trading post was operated on the Bonnet Plume in the thirties by a trapper-trader working out of Dawson City.

The white trappers covered large areas with long traplines and spent less time in hunting than native trappers with families. There is some indication that the effectiveness of white trappers, in addition to the needs of large native groups, had serious repercussions on the resource base. Beaver stocks reached a low point in the region.

The population of white trappers fluctuated according to fur prices. The fur returns for the region during the thirties, indicate that some trappers made good incomes. Like prospectors, many trappers were temporary residents in the region and withdrew when the going got tough, or eldorados failed to materialize.

Eskimos, hunting and trapping in the Firth River country, occasionally found gold in small quantities, and this has been the basis for a continuing interest in the Firth River on the part of both seasoned and amateur prospectors. In 1933, 1937 and the nineteen forties, minor gold rush activities occurred in the Firth River country. No long-term mining activities resulted from these ventures.

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(1) Moran J.F. Condition in the Mackenzie District, Ottawa, Department of Interior 1922 p. 12.

(2) The R.C.M.P. annual report for 1930 indicates there were four trappers on the Anderson in 1929, three in the vicinity of the Anderson River forks and one forty-eight miles beyond the forks. The area south of the Anderson was being hunted by the "Slavey", Hare Indians of Great Bear Lake and Fort Good Hope.



During the thirties outboard motors came into common use among residents of the lower Mackenzie region, while along the coast, schooners continued to be used by more affluent Eskimos and white trapper-traders. The use of outboard motors greatly facilitated bush travel.

McDougall Pass was used as an access route between the Mackenzie Delta and the Yukon by trappers and adventurers. (1)

The operations of the Canalaska Trading Company at Herschel Island and Aklavik, offered severe competition to the Hudson's Bay Company. As had the activities of whalers in the earlier period, American goods brought around the north Alaska coast, were cheaper and attracted Eskimo, Indian and white trappers. White trappers on the Anderson River travelled by boat to Herschel to secure their trapping outfits. The fur returns for Herschel Island during the nineteen thirties include fur species taken in the bush country, as well as the tundra and coastal areas. The Northern Trading Company also actively competed with the Hudson's Bay Company.

In the late thirties, the Canalaska Company and the Northern Trading Company sold out their main trading operations in the lower Mackenzie region to the Hudson's Bay Company.

For the purpose of this report, the location and period of operation of trading posts in the lower Mackenzie region is of some interest.

Kitto, (1930 p. 52), reported the existence of about a dozen small trading posts in the Mackenzie Delta, in addition to Aklavik. From the delta to the west side of Bathurst Inlet, he reported upwards of twenty-five small establishments, mostly of a temporary nature. Forty-six posts are reported to have been in operation in the lower Mackenzie region in 1931-32. This number had been reduced to thirty by 1934-35. The depressed economy in the thirties affected trading activities.

The fact that so many trappers also operated small trading outfits, indicates the extent to which the trapping grounds were crowded by indigenous groups as well as by white trappers. The profit margin in trading in hinterland areas, in competition with major trading posts to which native groups made semi-annual trips, was small, since many of the trappers secured their trading outfits from the larger companies. The fur returns of individual small trapper-traders, during the thirties and forties, were small.

Aklavik was the centre of a number of trading operations, ranging from the large establishments to individual operators.

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(1) A number of popular travel accounts have been published since the early 1900's by early tourists and adventurers, who followed the Mackenzie to the delta area. Some proceeded over McDougall Pass and on into the Yukon and Alaska.

In 1931, the incident of the Mad Trapper, Johnson, of Rat River occurred involving a large scale manhunt organized by the R.C.M.P. and the use of a small plane. This case received a great deal of publicity. The story is being perpetuated in folklore form by the surviving members of the manhunt living in the delta.



The operation of numerous small trading posts continued until the end of the nineteen forties. A survey, in 1966, of local whites, who have lived in the lower Mackenzie region for a number of years, revealed, that in addition to being trappers, they were also involved in trading activities of varying durations. This reflects the narrow economic base in the region. Other forms of "entrepreneurship" became possible only with increased government activities, and a growth in non-permanent white populations in the major centers.

Table 7

History of Trading Establishments

<u>Trading Posts</u>	<u>Location</u>	<u>Date of Establishment</u>
Hudson's Bay Company	Pokiak Point	1912
	Arctic Red River	1912
	Aklavik	1924
	Kittigazuit	1909-1929
	Shingle Point	1917
	Baillie Island	1916-1942
	Letty Harbour	1931-1935
	Herschel Island	1915-1938
	Marten House (camp trade)	1930-33
	Maitland Point	1939 - temporary move from Baillie Island
	Pearce Point	1929-33
	Horton River	1935 - (purchased from independent traders)
Northern Traders	Arctic Red	1912
	Aklavik	1916
	Herschel Island	1929-1931
	Indian Village	
	Lower Peel	1929-1945
Northwest Trading Co.	Herschel Island	1931-1932
Canalaska Trading Co.	Herschel Island	1931-1936
	Aklavik	1936-1938
Roman Catholic Mission	Stanton	1937-1955
	Paulatuk	1936-1954
	Aklavik	1934-35
		1942-1946



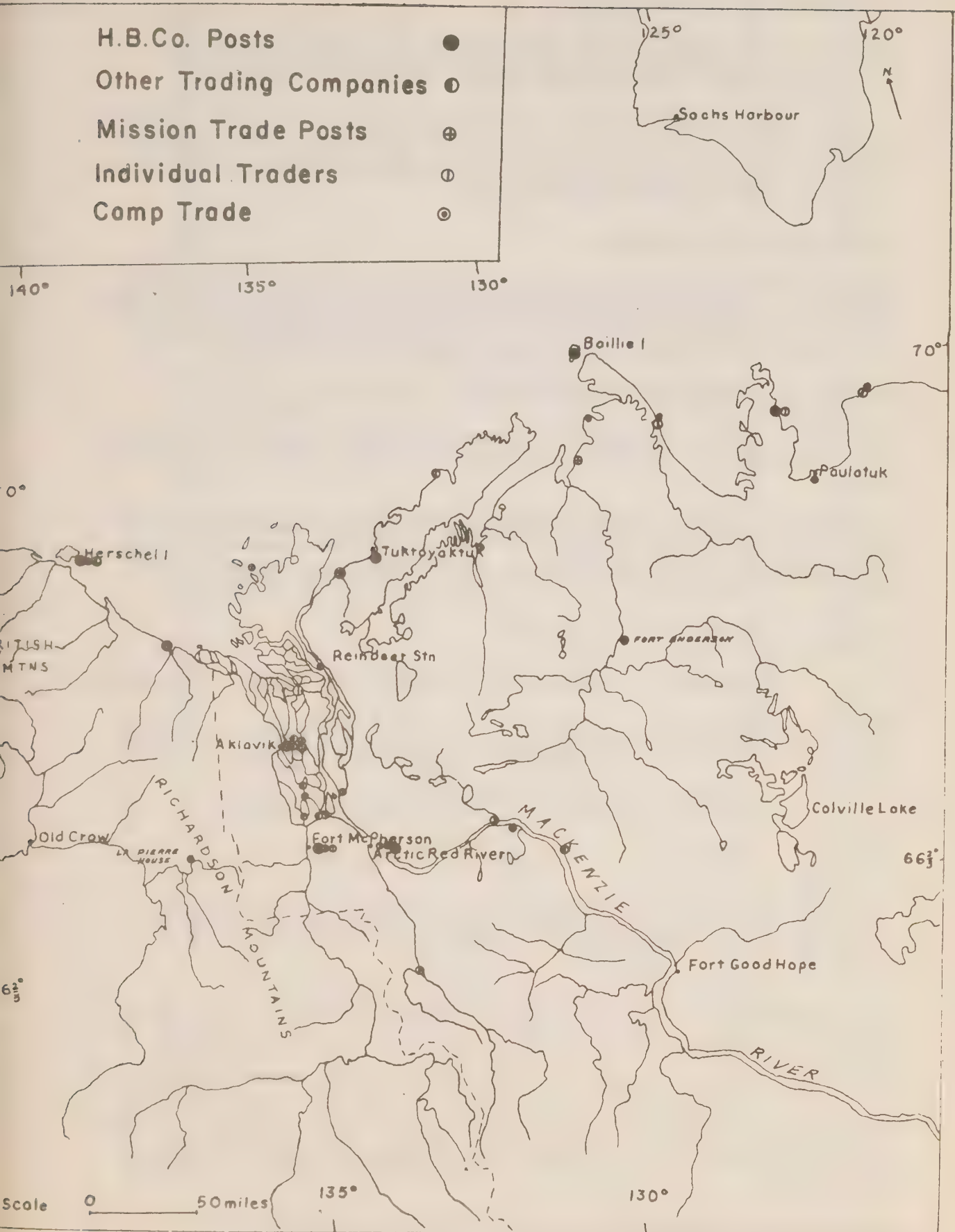
Independent Traders - Aklavik

K. Lang	Aklavik 1930-39
Mrs. Kost	1929-45
H. Semmler	1942-54
Peffer Trading Co.	1931-54
M. Krutko	1948-49
Mrs. G. Roberts	1942-49
A. Norris	1938-54
A. Pines Co.	1946-47, 1949-50
Shubin	1940-1945
McLeod	1939-54
J.H. Douglas	1938-39, 1947
Boxer	1941-43, 1945-46, 1952-53
Jones	1938-39, 1948-49
Ethier	1941-42, 1944-45
Mackee	1946-47
Eckhardt	1929-30, 1932-38
W.W. Douglas	1936-37, 1940-41
MacDonald	1944-47
McCauley	1946-47
Ross	1940-41, 1945-46

Independent Traders - Operating Elsewhere

Gus Astena	Kugaluk River 1937 Anderson River 1930
Clarke	Travaillant River 1929-1952 Arctic Red River
Wyant	Horton River
A. Kunizzi	Peel Channel 1939-47 (Indian) Fort McPherson
K. Lang	Peel Channel 1933-1963
Unknown	Husky Lakes 1934-37
R. Wallace	Reindeer Station 1930
Semmler	Napoiak Channel 1951-58
Johnson	Upper Arctic Red River 1930
Unknown	Kendall Island 1920's or 1930's







### Aklavik as a Fur Entrepot 1929-55

Aklavik was the capital of the fur trade in the Mackenzie Delta area. It attracted white, Metis, Indian and Eskimo trappers from a wide zone, extending from the Anderson River country, to Herschel Island.

Aklavik boasted a large number of trading companies. It was an important mail and freight depot and in many respects was a jumping-off point for hinterland areas. During the summer the population increased, due to an influx of summer visitors from the south.

### Fur Returns - Fort McPherson

The fur returns for Fort McPherson, between 1929 and 1958, indicate the importance of muskrat in the local economy. During this period only small numbers of marten were traded annually. Mink was of some importance in the economy. Beaver and fox were also taken in fair numbers.

### Fur Returns - Arctic Red River 1929-58

Arctic Red River was an important centre for trade in beaver, marten and mink, also muskrat. Numbers of fox of various types, and lynx, were also traded.

The Herschel Island fur returns between 1929-1936, are indicative of the varied fur-take at that location. The year, 1929-1930, was a boom year, in comparison to the following years, in respect to the number of furs traded.

### Herschel Island Fur Take 1929-36 (1)

	<u>White Fox</u>	<u>Marten</u>	<u>Mink</u>	<u>Muskrat</u>	<u>Polar Bear</u>
1929-30	11,920	121	163	20,295	23
1930-31	2,899	534	174	2,770	19
1931-32	4,328	198	491	4,841	12
1932-33	1,755		no record		3
1933-34	1,323	217	6	95	4
1934-35		--	no record		
1935-36	3,441	149	24	617	9

The number of fur posts, fluctuations in fur prices, the tendency of non-native trappers to change their trapping locations and semi-nomadic population shifts, tended to make trading a risky venture for all, except the larger companies.

The well-established entrepots, like Fort McPherson and Aklavik, drawing furs from a richer inland base, were to survive all the vicissitudes of Arctic and sub-Arctic trading. The trading operation at Tuktoyaktuk survived in combination with its function as a supply depot for other posts. In the nineteen fifties and nineteen sixties, a rapid growth in administration and welfare, with attendant construction, enabled trading companies to base their operations on a second, more lucrative base, federal and territorial expenditures, and social assistance payments of various types.



# Aklavik As A Fur Entrepot 1929-55

Aklavik was the "capital" of the fur trade in the lower Mackenzie region.

	Polar Bear	Other Bear	Beaver	Black	Blue	Cross	Fox Red	Silver	White	Lynx	Marten	Mink	Muskrat	Other Squirrel	Weasel	Wolf	Wolverine
1929-30	83	1			66	205	348	12	11,971	176	75	570	75,939	1		878	
1930-31	1	1	4		5	296	519	20	523	144	29	1444	78,747			972	
1931-32	10	1	14		1	255	512	17	315	107	58	2552	101,234			932	
1932-33	10	2	106	2	9	371	723	60	1,523	245	88	3537	60,458	1		601	
1933-34	2		61		5	397	628	21	382	113	73	1012	38,824			357	
1934-35	1		35		6	236	418	27	2,174	27	67	213	38,803	1		173	11
1935-36	1		48		11	423	588	38	1,046	38	178	119	47,205			790	1
1936-37	3		28		4	358	560	36	529	11	36	31	88,180			540	
1937-38	15	6	50		20	437	596	143	2,872	23	145	115	111,256			1092	
1938-39	12	4	156		3	249	380	19	3,885	1	22	264	182,475			937	1
1939-40	5		132		13	292	450	13	1,551	18	81	935	200,198			676	1
1940-41	16	2	31	2	24	697	799	94	4,953	28	179	1459	177,092			2143	2
1941-42	14	1	97		8	230	435	40	419	27	97	938	199,985	1		1454	
1942-43	10	3	55	2	35	468	849	57	11,077	53	35	807	193,091	2		1552	
1943-44	10	3	07	4	15	658	1139	97	1,700	89	425	187,390		7		195	53
1944-45	23	3	65		1	181	273	19	532	202	594	214,691		20		357	
1945-46	4		5		6	185	271	19	2,323	288	1103	84,016		154		1472	
1946-47	17	3	13		42	155	320	25	6,608	230	15	1416	271,995	2302		900	2
1947-48	17	2	4		9	57	31	5	1,245	118	75	742	144,925	322		673	2
1948-49	9	3	12		13	30	46	5	102	75	30	812	188,648	288		1023	14
1949-50	7		10		2	33	33	11	220	79	44	723	223,648	383		1082	2
1950-51	8	2	6			44	88	10	169	36	115	1255	179,492	1		1324	1
1951-52	7	4	22		2	18	20	6	1,306	15	81	945	118,249	310		1545	2
1952-53	20		15		9	7	15		142	12	217	1043	128,611	1		932	12
1953-54	6		70		2		8	1	330	4	38	1154	147,110	322		1518	
1954-55	296	41	1,216	10	311	6282	10049	795	57,892	2270	1778	24208	3482,262	8	5176	24118	48
																	5

(1) Source Fur Records held by Game Dept., Fort Smith

The white fox returns from the region were supplemented by the trading activities of Eskimos trapping on Banks Island from time to time. These travelled by schooner to Aklavik or Herschel Island to gain supplies.



Fur Returns Fort McPherson

Year	Bear		Blue	Fox Cross	Red	Silver	White	Lynx	Marten	Mink	Muskrat	Otter	Ermine	Wolf	Wolverine
	White	Other													
1929-1930		3		4	19			28	52	82	20,037	1	420		
1930-1931		3	191	41	110	8		200	72	542	16,780		1671		
1931-1932			152	36	63	1		91	13	392	44,629	1	686		
1932-1933			253	122	108	7	1	73	147	657	12,735	4	335		
1933-1934		1	198	109	153	18		100	36	314	13,127		227	1	
1934-1935			122	98	129	15	1	290	61	136	12,576	2	152	2	
1935-1936			202	62	140	22		170	60	141	14,918		283	4	
1936-1937		4	100	44	46	4		48	66	36	21,574		181	4	
1937-1938			126	17	19			10	48	25	26,264		492	1	
1938-1939			167	19	26			17	49	107	40,849		283	2	
1939-1940		1	55	36	51	4		9	36	193	33,108		274	1	
1940-1941				3	5	7		19	19	86	10,051		108		
1941-1942			31	39	72	7		45	122	248	36,727		869		
1942-1943			98	28	52	4	1	2	25	106	2,830	1	539		
1943-1944			161	27	77	6		35		219	21,834		186		
1944-1945			138	20	23	2		50		210	47,884		227		
1945-1946				21	44	4		36		311	46,004		467		
1946-1947				4	8		1	45		163	34,631		188		
1948-1948				7	23			30	10	101	31,849		150		
1949-1949								36	19	116	22,304		129		
1950-1951				3	1			19	32	171	44,547		596		
1951-1952				6	6			21	32	108	48,155		409		
1952-1953				4	2			8	20	93	28,833		426		
1953-1954			60	1				11	56	257	63,741		450		
1954-1955			53	1	1		3	32	33	156	29,222		380		
1955-1956			31					43	34	164	16,613		582		
1956-1957			27					20	21	83	30,284		262		
<hr/>															
	12	2,165		752	1,178	109	7	1,489	1,063	5,218	772,106	9	10,972		15



Arctic Red River Fur Returns 1929-1958

Arctic Red River

Year	Bear White	Other	Beaver	Black	Blue	Fox Cross	Red	Silver	White	Lynx	Marten	Mink	Muskrat	Otter	Ermine	Wolf	Wolverine
1929-1930						28	39		2	20	183	39	531		375		
1930-1931		3		1		64	90		4	75	660	322	54,038	11	978		
1931-1932		5	261			89	83	14	13	88	419	489	22,140	5	785	2	
1932-1933		3	152			15	18			80	76	114	4,503		35		
1933-1934			390			93	151	12		273	183	170	9,048	1	58		
1934-1935			521	1		216	296	35	1	440	213	405	2,761	1	133		
1935-1936			462			278	372	31		285	158	194	4,651	2	259		
1936-1937			252			114	165	10	1	30	300	47	10,879		174		
1937-1938			401			97	161	8	3		335	26	17,413		694		
1938-1939			340			23	36	4	2	4	227	26	17,006		406		
1939-1940			306			66	111	9	1	18	175	149	20,772		125		
1940-1941			499			47	115	11		9	216	317	13,675		492		
1941-1942			451			108	181	19		40	182	259	8,029		250		
1942-1943			480			161	230	41	9	28	193	145	8,005		293		
1943-1944			437	1		214	397	31		33		194	5,455	3	96		
1944-1945			356			82	140	6	1	99	221	221	14,168		117		
1945-1946			97	1		85	159	21		119		376	22,786		214		
1946-1947			185			43	59	4	1	139		287	13,486		61		
1947-1948			267			31	54	2	2	194	136	262	9,377	1	92		
1948-1949			274			20	31	2		96	148	94	13,440		135		
1950-1951			410			13	15			11	293	84	12,554		289		
1951-1952			308			4	13		1	6	224	64	11,347		250		
1952-1953			174			6	6		6	4	359	153	9,900		467		
1953-1954			397			14	14		3	5	974	292	17,585		603		
1954-1955			352			6	5		19	11	471	134	6,312		218		
1955-1956			274						4	14	327	98	6,762		370		
1956-1957						1	1			11	91	37	3,029		111		
1957-1958			39			1	5			17	155	71	3,974		85		
	11		7,885	4		1,919	2,947	260	73	2,149	6,919	5,069	343,626	24	8,165		



Tuktoyaktuk Fur Returns 1933-1958-59

Locality of  
Fur Taken

Tuktoyaktuk	Bear			Fox		Silver	White	Lynx	Marten	Mink	Muskrat	Otter	Ermine	Wolf	Wolverine	Beaver
	White	Other	Black	Blue	Cross											
1933-34					3		1179				15					
1934-35	4			1	6	4	137				5					
1935-36					53	7	226	4	15	10	103		59			
1936-37		1		1	50	4	124	1			2180		5			
1937-38					120	14	168		56		5113		660			
1938-39	3	2		27	68	2	284		8	4	1195		139	2	1	5
1939-40	2				1		1									18
1940-41				4	216	23	1274			5	11,024		126	16		11
1941-42				2	136	13	517		1		4,922					11
1942-43	1			20	136	12	2216		48	11	4,840		123			34
1943-44			1		84	4	950	1		18	7,129	1	18			18
1944-45	3			1	125	11	567			3	8,727		13			56
1945-46	3			1	92	11	1028	3		42	11,735		96			22
1946-47	2			12	32	2	1341			24	1,424		42			32
1947-48	1	1		2	30		1158	1	42	13	839		35			2
1948-49	4			4	66	2	688		127	5	6,344		267			14
1949-50	3				11	4	66	2	285	43	6,683		344			16
1950-51	1				4		20		579	36	3,208		575			8
1951-52	3			29	61		7915		257	8	5,679		605			64
1952-53	2			1	7	10	2569		276	52	19,541		343			
1953-54					no record											
1955-56	2			4	2	2	3701		7	3	675		8			
1956-57	5			2		1	680		5	2	398		6	1		
1957-58	1			4		1	295		10	7	84		154			
1958-59	14			1	3	1	778		155	21	24		33			
	54	5	1	117	1303	2227	27,882	12	1,871	307	101,887		3,651	19		255

1940-41 (includes Maitland Point - post returns)



# RETURNS OF SMALL POSTS

Locality of  
Fur Taken

Locality of Fur Taken	Bear				Fox				Lynx	Marten	Mink	Muskrat	Otter	Ermine	Wolf	Wol- verine
	White	Other	Black	Blue	Cross	Red	Silver	White								
<b>Eskimo-Lakes</b>																
1934-35.....					2		2	2								
1935-36.....		no record														
1936-37.....					22	33		9		119						
<b>Anderson River</b>																
1937-38.....	1							7		47	2				1	
1938-39.....																
<b>Stanton</b>																
1942-43.....					23	68	3					560				
1949-49.....				1			3									
1950-51.....	8				10	30		156		128	9	1995	76			
<b>Kittigazuit</b>																
1947-48.....	1					1		9								
1948-49.....	4				5	13		29								
1949-50.....	1					6		7								

# RETURNS OF SMALL POSTS

Locality of  
Fur Taken

Locality of Fur Taken	Bear				Fox				Lynx	Marten	Mink	Muskrat	Otter	Ermine	Wolf	Wol- verine
	White	Other	Black	Blue	Cross	Red	Silver	White								
<b>Baillie-Island</b>																
1929-30.....	1			1	23	33	4	664		15						
1930-31.....	1			4	14	43	1	1245		472	1			13		
1931-32.....		no entry														
1932-33.....				1	31	86	3	780	8		28	34	1	11		
1933-34.....				1	19	46	1	577						16		
1934-35.....				2	10	53	1	564			1			5		
1935-36.....					40	89	3	1272		1		1		15		
1936-37.....					18	31	9	229	1	1						
1937-38.....		no entry														
1938-39.....				2	29	69		665				656		110		
<b>Horton River</b>																
1929-30.....				13	22			1414	1							



The returns for the Travaillant River post, for the period 1929-1951, are indicative of the returns for small fur post operations, by a trapper-trader, competing with established trading centres in the forested region. The fur returns are small in all years.

#### Travaillant River Post 1929-1951

	<u>Beaver</u>	<u>Cross</u>	<u>Red</u>	<u>Silver</u>	<u>White</u>	<u>Lynx</u>	<u>Marten</u>	<u>Mink</u>	<u>Muskrat</u>	<u>Weasel</u>	<u>Wolverine</u>
1929-30	76	10	17	2	1	5	36	5	1,400	90	2
1930-31	108	1	34		5	11	236	39	1,780	145	
1931-32	64	13	21			45	46	47	2,934	147	
1932-33	63	13	21			94	55	145	275		
1933-34		no return									
1934-35	49	30	126	4		203	10	126	213	4	
1935-36	94	46	146	13		199	63	125	186	12	
1936-37		44	92	3		23	76	31		39	
1937-38	124	19	46	6		13	87	9	407	129	
1938-39	93	15	19	1	1	4	66	2	3,077	149	
1939-40	3	2	1			1	4	1	153	17	
1940-41	4	5	2			2	12	21	160	24	
1941-42		5	9					14		5	
1942-43		no return									
1943-44	39								127		
1944-45	20							1	230		
1945-46						9		36	305	13	
1946-47	21								211		
1947-48		no return									
1950-51	118		2	2		3	40	25	1,511	13	
1951-52	109						3	2	2,169	4	

The declines which occurred from 1939-52, are indicative of a decline in activities by white trappers, and of competition for furs from larger fur entrepôts, during the high-price period in the forties.

The fur returns of the major trading centres give some indication of the resource. During the nineteen thirties and nineteen forties, there were some trappers and trapper-traders who sent their furs south to auction centres, by-passing traders in the larger entrepôts. In general, however, the credit system worked against this and the number of persons totally independent of local traders was small.

Also, small amounts of furs reached Dawson City as a result of dog teams trips across the mountains by Peel River Indians.

The continuing instability of the fur trade and the frequent influx of itinerant trappers, who "mined" fur resource areas in various parts of the western Arctic, prompted the passing of an act by the Canadian government in 1938, to restrict trapping in the N.W.T. to indigenous groups and British subjects, resident in the Territories, on or before, 1938.

#### Changes in Water Transportation

In the nineteen thirties, the Hudson's Bay Company gradually began to withdraw from the field of common carrier between Waterways and Aklavik,



but continued to function along the Arctic coast. The function of providing water transportation services was assumed by Northern Transportation Company, a Crown Corporation, with a routing extending from Waterways to Aklavik. In the nineteen forties and nineteen fifties, the Yellowknife Transportation Company also provided common carrier service between Great Slave Lake and Aklavik.

Service consisted of twelve round trips per season between Great Slave Lake and Aklavik, with two being continued north and east along the Arctic coast, to points such as Tuktoyaktuk, Bathurst Inlet and Coppermine.

Major problems in water transportation during the period were small freight tonnages and the imbalance between north and south shipments. For example, only 24,881 pounds of freight were shipped south from Aklavik to Waterways in 1946; 7,501 pounds from Fort McPherson, and 10,509 pounds from Tuktoyaktuk, indicative of the restricted nature of the economy. Northbound shipments to these three settlements in 1946 totalled 1,999,211 pounds.

#### Changes in Water Transportation Routes

The cessation of coastal trading and re-supply of trading posts, via the Point Barrow route, came to an end in 1936. The establishment of customs facilities by the R.C.M.P. at Herschel Island, became a deterrent to American activities in the western Canadian Arctic. The loss of two of the Hudson's Bay Company supply ships in 1933, proved to be a major factor in a re-orientation of Hudson's Bay Company supply systems.

Hudson's Bay Company freight for the Arctic coastal stations was diverted to the Mackenzie system. This resulted in the growth of Tuktoyaktuk as a trans-shipment point, between the Mackenzie River traffic and coastal traffic. These changes were to bring about a decline in activity, between the delta and the Alaskan-Canadian boundary, and the ultimate abandonment of Herschel Island.

#### The Growth in Air Transportation

The rapid growth of air transportation in Canada resulted in the first air mail reaching Aklavik from Edmonton in 1929. By 1930, air companies were offering flights to Aklavik every eight weeks from Edmonton. Weekly air mail service to Aklavik was instituted in 1939. The use of small planes for air charters, by trappers and prospectors in the lower Mackenzie, had its greatest impetus in the mid-fifties, when a small-plane operator located at Aklavik. The use of this form of transportation has become

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The discovery and development of the Yellowknife gold fields in the nineteen thirties and the development of the pitch blende deposits on the east side of Great Bear Lake in the same period, were incentives to developments in water transportation on the Great Slave Lake - Mackenzie waterways. Norman Wells became important as a producer of petroleum products for use in mining operations. Through transportation developments the development of a near source of petroleum products situated on the main traffic artery, resulted in indirect benefits for the whole lower Mackenzie region.



increasingly important in the region, supplementing water transportation and in some areas, (i.e. Anderson River area), supplanting it.

### Population Distribution

In 1930, Kitto reported there were 503 Loucheux or Kutchin Indians in the region, with 178 trading into Arctic Red River and 325 at Fort McPherson. The Eskimos of the delta and coastal regions west of Cape Parry, numbered 526 with 400 reported living in the delta and 126 centered around the Baillie Island post in the summer. The census, in 1927, indicated there were 200 Eskimos at Herschel Island, fifty at Shingle Point and fifty at Demarcation Point. (1)

Some figures are available as to the non-Indian and Eskimo population in 1931. According to the 1931 census there were 91 non-natives at Aklavik, thirteen at Fort McPherson and sixteen at Arctic Red River. Of this population, 29 per cent were hunters and trappers, 13 per cent were classed as traders, while the remainder were concerned with administration, police and missionary activities.

In the following decade a number of changes occurred. The population of Herschel Island decreased. This was partly attributable to a re-orientation of Eskimo groups, both westward and eastward into the delta area. The Hudson's Bay Company post closed in 1938.

Some increases in population occurred in the zone between Richards Island and Pearce Point.

Some decreases in Indian populations in the southern part of the region are partly attributable to the increased establishment of Indians at Aklavik and in the delta zone between the Peel River and Aklavik. No large scale out-migration of native people occurred. There were minor movements of Eskimo groups within the region and some in-migration from east and west. An Alaskan group established itself at Cape Parry in 1930. Travel by dog team and small boat along the western Arctic coast, and the varying abundance of resources, resulted in constant population movements. A single Eskimo family might function over several hundred miles in the space of a few years.

In 1941, the Dominion census listed a population of 757 for Aklavik and the surrounding district. Eskimos were in the majority with a population of 377. Indians and half-breeds totalled 213 while whites totalled 167. The population of the Fort McPherson and Arctic Red River area totalled 454 of whom 426 were Indians and half-breeds. The white population had decreased due to low fur prices and changes in legislation pertaining to trapping.

The Arctic coast, Herschel Island and the surrounding area had a population of thirty, the majority of which were Eskimos. The non-native element consisted of persons connected with missionary, trading and R.C.M.P. activities.

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(1) The census was carried out in the summer when local populations were increased by influxes of Eskimo groups to trade.



From Richards Island to Pearce Point, the total population listed was 282, of which 268 were Eskimo and fourteen were whites.

During the forties, native groups were still very much involved in the subsistence economy. Centralization was to begin in the nineteen fifties with the increase in government activities.

A comparison of sketch maps of settlements in the lower Mackenzie region in the nineteen forties, and site plans in 1966, indicate a large increase in settlement housing of resident groups.

Griffith Taylor's, (1945 p. 220-231), sketches of the settlements of Arctic Red River, Fort McPherson, Aklavik and Tuktoyaktuk are interesting in comparison with contemporary site plans. The community of Arctic Red River has shown little change. Major changes have been the increase in Indian housing in line with increased settlement orientation, a decline in garden acreage and the establishment of a school. Fort McPherson has shown major changes through the establishment of a school, a hostel and a large government enclave at the southern end of the settlement. At Aklavik, there has been a large increase in Eskimo and Indian housing in line with the increasing settlement orientation of the local population. The developments in Tuktoyaktuk are similar, there is increased settlement growth, the establishment of a government enclave centrally in the settlement, and major increases in native housing.

During the mid nineteen forties a rise in fur prices precipitated another fur boom in the Mackenzie Delta area, and resulted in an influx of trappers from elsewhere. Trappers moved into the area from along the Yukon, N.W.T. boundary, up river on the Mackenzie and from Alaska. The Alaskan trappers were Eskimos who moved into the country with their families. The fur price boom was relatively short-termed and prices began to show declines early in the nineteen fifties.

The institution of registered trapline systems in the N.W.T., in the forties, had the effect of tying many trappers to specific areas and put an end to the semi-nomadic habits of itinerant trappers, who moved from one trapping area to another.

The results of the 1938 legislation to protect resident trappers, became readily apparent in the lower Mackenzie region in 1966 when only a few white trappers were observed in the region, the majority having reached an age when full time trapping was impossible.

In the early nineteen fifties, Aklavik had a permanent population of approximately 600 with 300 whites and Metis, 170 Indians and 130 Eskimos. Aklavik offered a number of facilities not available elsewhere in the region. In addition to the large mission establishments, there was a Department of Transport Radiosonde Station and a Naval Detachment. Administrative facilities had grown sufficiently to include a sub-district of the R.C.M.P. Secondary industries consisted of a hotel, several stores and an oil depot. Electricity was supplied to the community by a small generating station owned by a private company.

Fort McPherson, the other major community in the lower Mackenzie region, had shown less growth in the establishment of stores and other facilities. Located up the Peel River it had a less strategic position in the region.



The 1951 census gave a total population of 1,515 for the Aklavik district and the coastal area between Richards Island and Pearce Point. The breakdown among ethnic groups consisted of 260 whites and Metis, 210 Indians and 1,045 Eskimos. The Indian population was concentrated in the forested areas.

The population total for the Fort McPherson and Arctic Red River areas was 463 Indians and 36 white and Metis. (1)

The 1961 census was to reveal a growth in the white population, resulting from the establishment of Inuvik and the immigration of whites to fill an expanding administrative base in the region.

### Distant Early Warning Line

The construction of the Distant Early Warning system in the nineteen fifties resulted in short-term population shifts. During the construction phase Eskimo, Indian and Metis workers, from Aklavik and the delta, were attracted to the coastal area. However, with the exception of Cape Parry and Tuktoyaktuk, no increased concentrations of native populations occurred. Agreements between the United States and Canadian governments provided the basis for employment of Eskimos on the DEW Line. The provision of accommodation attracted Eskimo and Indian families for varying periods. The numbers employed on the DEW Line were small, however, and with some exceptions few native families remained at outlying radar stations for long periods.

During the same period, (1953-1959), the Canadian government became committed to the establishment of Inuvik, the new townsite to replace Aklavik. Local population shifts occurred with the availability of construction jobs and the efforts of government agencies to resettle the residents of Aklavik.

During the nineteen fifties, the Department of Northern Affairs began the difficult task of organizing local projects for increased resource utilization and the improvement of local economies. By 1961, there were four resource-oriented projects, the Mackenzie Delta lumbering project, a fur garment industry at Aklavik, a fishing project and whaling project based at Aklavik.

By 1961, Inuvik had all the aspects of an organized settlement. The population consisted of 1,390 whites, 190 Eskimos and 80 Indians. Settlement facilities included a federal day school and large hostel establishments. Hospital services were available with three doctors in residence. A utilidor system was constructed to provide services for

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(1) MacKay, (1963 p. 178), indicates only one trapper was operating in the Anderson River valley by the mid nineteen fifties. Atkinson Point, Kittigazuit, Whitefish and other coastal points were subject to only short-term utilization by native groups based in the settlements.

A Loran station was established by the R.C.A.F. at Kittigazuit during the nineteen forties, but it was soon abandoned. Materials at the site were purchased by the Oblate Missions or "pilfered" by local residents.



the portion of the settlement occupied by government service employees. A large D.O.T. airport, to handle traffic between Inuvik and the south, was constructed and D.O.T. radio communication provided a link with the south.

In August 1961, the population of Aklavik and the surrounding area, was 711 of which 550 persons were considered to be permanent residents. Only fifteen per cent of the permanent residents were whites compared to 50 per cent prior to the establishment of Inuvik.

Aklavik lost population to the new community and a number of organizations, including the Naval Station and the D.O.T., had relocated to the more strategic townsite of Inuvik. For some local residents the shift to Inuvik was a temporary one and they later moved back to Aklavik.

With the exception of increases in the administrative and educational fields, and an increase in settlement orientation of sectors of the local population, Fort McPherson had shown little change. The population totalled 504 consisting of 386 Indians, 49 Metis, six Eskimos and 63 whites.

Arctic Red River, with a population of 72 Indians, 12 Metis and 11 whites, continued to be a small, isolated settlement with limited facilities. Seventeen of the Indian families had houses in town.

Reindeer Station had a population of 86 consisting of 76 Eskimos and ten whites. Strategic advantages had occurred out of the establishment of Inuvik as well as an increased potential for marketing reindeer meat.

The status of Tuktoyaktuk received a close examination by Abrahamson in 1963. A depopulation of coastal areas had occurred and a large Eskimo population is now centered in Tuktoyaktuk.



#### IV THE SETTLEMENT MILIEU

The study area embraces five settlements and their general resource areas. The settlements are Inuvik, Aklavik, Fort McPherson, Arctic Red River, Reindeer Station and Tuktoyaktuk.

There is an extreme diversity in settlement types. Inuvik is a "planned" urban community, while Aklavik is a pioneer settlement in a state of flux. Fort McPherson, like Aklavik, is in a state of transition emerging into an organized community. Reindeer Station is a small "company" community based entirely on the Reindeer Project. Arctic Red is a mission station and fur outpost, which is becoming de-populated due to forces outside its boundaries. Tuktoyaktuk epitomizes the "new type Arctic communities", where the Eskimos are rapidly becoming townsmen.

##### INUVIK

Inuvik, 68°12'N. and 135°00'W, is located on relatively low ground, between the Mackenzie Delta on the west, and an upland area rising to 150 feet on the east. The land elevation increases from the East Channel for a mile to a mile and one half. Then the terrain abruptly slopes upward to higher ground, which parallels the north-west, south-east direction of the delta.

Drainage is to the north-west or west, with streams rising in the upland area. Drainage within the townsite area is good, but on the lower flats drainage becomes poor and bog conditions occur.

Inuvik can be divided into an administrative core, a commercial zone, a central area of churches, school, hostels, park and playgrounds, serviced and unserviced residential sectors and an operational (N.C.P.C.) and storage area fronting the East Channel.

##### Local Vegetation

The dominant tree species are white birch and white spruce with secondary stands of willow and alder. Birch predominates on south-facing slopes and well-drained areas. Spruce is dominant on north-facing slopes and in poorly drained areas. The ground cover consists of reindeer and sphagnum moss, ground birch, grass tussocks and berry plants.

Within the townsite proper, much of the ground cover and trees were destroyed during land clearance operations, between 1954 and 1957. In the unserviced area, ground cover and trees have been left in a fairly undisturbed state except in the immediate vicinity of dwellings. This gives a park-like atmosphere, despite the inferior condition of many of the buildings. Substantial attempts were made in 1966, to replace organic surface materials in the serviced sections and to re-seed areas with grass.

##### Soils

The predominant sub-surface materials at Inuvik are peat and organic materials, brown gravel with sand or silt, grey gravel with sand, silt



and clay. Ice lens concentrations are high. Pure ice formations up to a foot in thickness, are occasionally found in peat.

A brown gravel with sand, silt and clay is the most prominent soil at Inuvik, and occurs in a layer, varying from five to fourteen feet in thickness, overlain by a varying mantle of organic material.

#### D.P.W. Wharf at Inuvik

The main wharf used in unloading barges and other large carriers, has a working face of 200 feet with a sixty-foot, upstream, return wall. The wharf face is sheeted in steel, a works' project completed in 1966.

There are a number of small docking facilities scattered along the waterfront area, which extends in a north-south direction for three quarters of a mile.

The majority of local boat owners beach their boats since there is no tidal change. The water level drops perceptibly in August.

The northern lake of Twin Lakes is used by boat owners, living in the unserviced section, for beaching canoes and boats. Access to this location is made through a stream, connecting the lake with the East Channel. Water depths are sufficient for canoes and small boats during the high-water period in the spring. Later, during the summer, low water depths in the stream force boat owners to remove their craft from the lake to beach areas along the East Channel.

#### All-Weather Roads - Inuvik

An estimated six miles of all-weather road exist in the townsite. All-weather roads beyond the townsite, consist of road connections between the airport, which is 8.1 miles south-east of Inuvik, and a road leading to the Imperial Oil location. The total mileage of out-of-settlement roads is 15.5 miles.

The maintenance trail, following the C.N.T. line south from the settlement, is usable only with tracked vehicles in both winter and summer, due to ground conditions.

A bombardier trail exists between Sitidgi Lake and the town. This is infrequently used during the winter.

#### Traffic

A rectangular road pattern exists in the community. A major traffic artery, Mackenzie road, connects the hospital and the serviced sector with the central commercial and administrative core, and the unserviced section. This road extends beyond the community to connect with the airport eight miles to the south, and Shell Lake, the location for landing and take-off of aircraft of the second class service scheduling, between Inuvik and other communities in the region.

#### Settlement Transportation Systems

There has been no extensive development of settlement transportation



systems with the exception of Inuvik. The various government agencies provide transportation in varying forms for their employees. The Department of Indian Affairs and Northern Development provides a pick-up and delivery service for its employees both in winter and summer. The Navy provides bus and sedan transportation for its employees and personnel.

Despite this, there are two thriving taxi businesses in Inuvik. Seventeen taxi operator permits were issued in 1966 to persons in Inuvik. Taxi services are extensively used by residents of both the serviced and unserved section.

An Eskimo attempted to obtain a permit to operate a third taxi system in Inuvik in 1965, but the Advisory Council felt that two systems were adequate for the needs of the community.

A private bus system has been initiated for in-settlement transportation in Inuvik. Two standard type buses are owned and maintained by the operator. The operator has experienced some difficulty in vehicle maintenance and receives severe competition from the taxi systems. He is attempting to provide scheduled transportation in both the serviced and unserved section. A service loop has been established connecting the commercial, administrative core of the community, with the serviced and unserved sections.

#### Water

Water is supplied through a heated utilidor system, to buildings in the serviced sector and to the commercial and administrative core connected with the utilidor. In the unserved sector of the community, water is delivered by tank truck at a cost of ten dollars a month, or \$1.25 a barrel.

The water is subject to regular analysis. The estimated water requirements of Inuvik are 150,000 gallons per day, with a possible capacity of 250,000 gallons.

#### Sewage

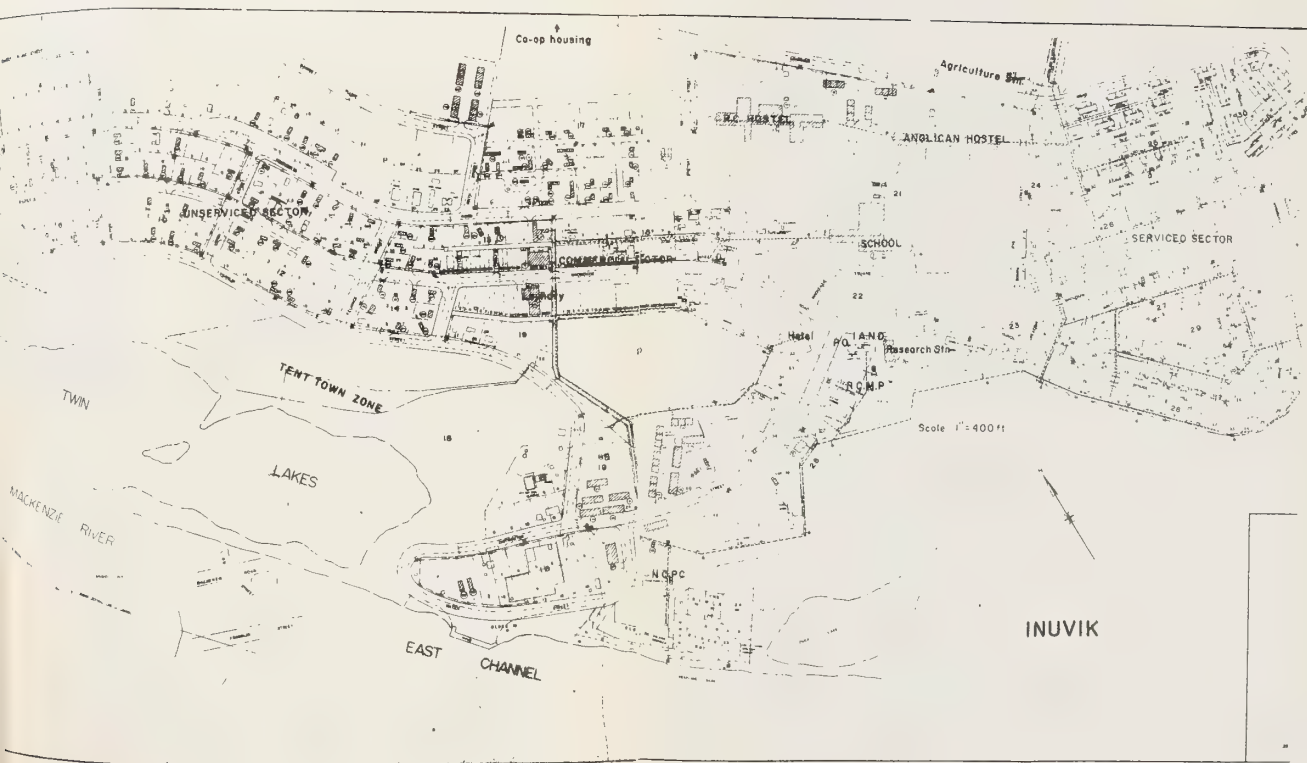
In the serviced sector of the community, sewage is piped by utilidor system to a sewage lagoon, where it is held, pending favourable discharge into the Mackenzie.

In the unserved sector, both garbage and sewage are collected on a weekly basis with no charge being made for the service.

#### Electricity

Electricity is supplied to an estimated 90 per cent of the buildings in Inuvik. The source of power is the diesel plant operated by the Northern Canada Power Commission, with five generators with a capacity of 2,800 K.W. Differential rates exist for domestic and commercial uses. The rate for domestic consumption is 16.2 cents a K.W., while that for commercial is 8.5 cents a K.W.







### Inuvik as a Regional Center

Inuvik fulfills an important role as a regional center with respect to the lower Mackenzie region. It is the headquarters for a number of government organizations with activities in the smaller communities. These government departments and crown corporations are listed below:

#### Department of Indian Affairs and Northern Development

- Inuvik Regional Offices - Regional Administrator
- Engineering Services
- Welfare - Regional Superintendent of Welfare - Rehabilitation Services
- Schools - Regional Superintendent of Schools
- Fire Protection Service
- Employment Service - Regional Employment Office
- Storekeeping - Regional Stores
- Canadian Wildlife Services
- Garage

#### Department of National Health and Welfare

- Northern Health Services Headquarters - Supervisor of Nursing Stations
- Mackenzie Zone Office
- Inuvik General Hospital - 80 bed hospital

#### Northern Canada Power Commission

- Utilities
- Light, Heat, Water and Sewage - power stations at Aklavik and Fort McPherson

#### Royal Canadian Mounted Police

- Western Arctic Sub-Division Office - detachments at Aklavik, Tuktoyaktuk, Fort McPherson, Arctic Red River
- Local Police Services

#### Canadian Broadcasting Corporation

- Local Radio Station

#### Canadian National Telecommunications

- Local Telephone Service
- Telephone Service to surrounding communities
- LF Ratt Circuit Inuvik - Hay River D.O.T. Transmitter 172 Kcs
- Land Line Services - radio, telephone

#### Department of Transport

- Aeradio
- Airport
- Meteorological Station



Ⓡ-Regional Offices  
IAND, NH, RCMP, NCPC

A-Area Offices (IAND)

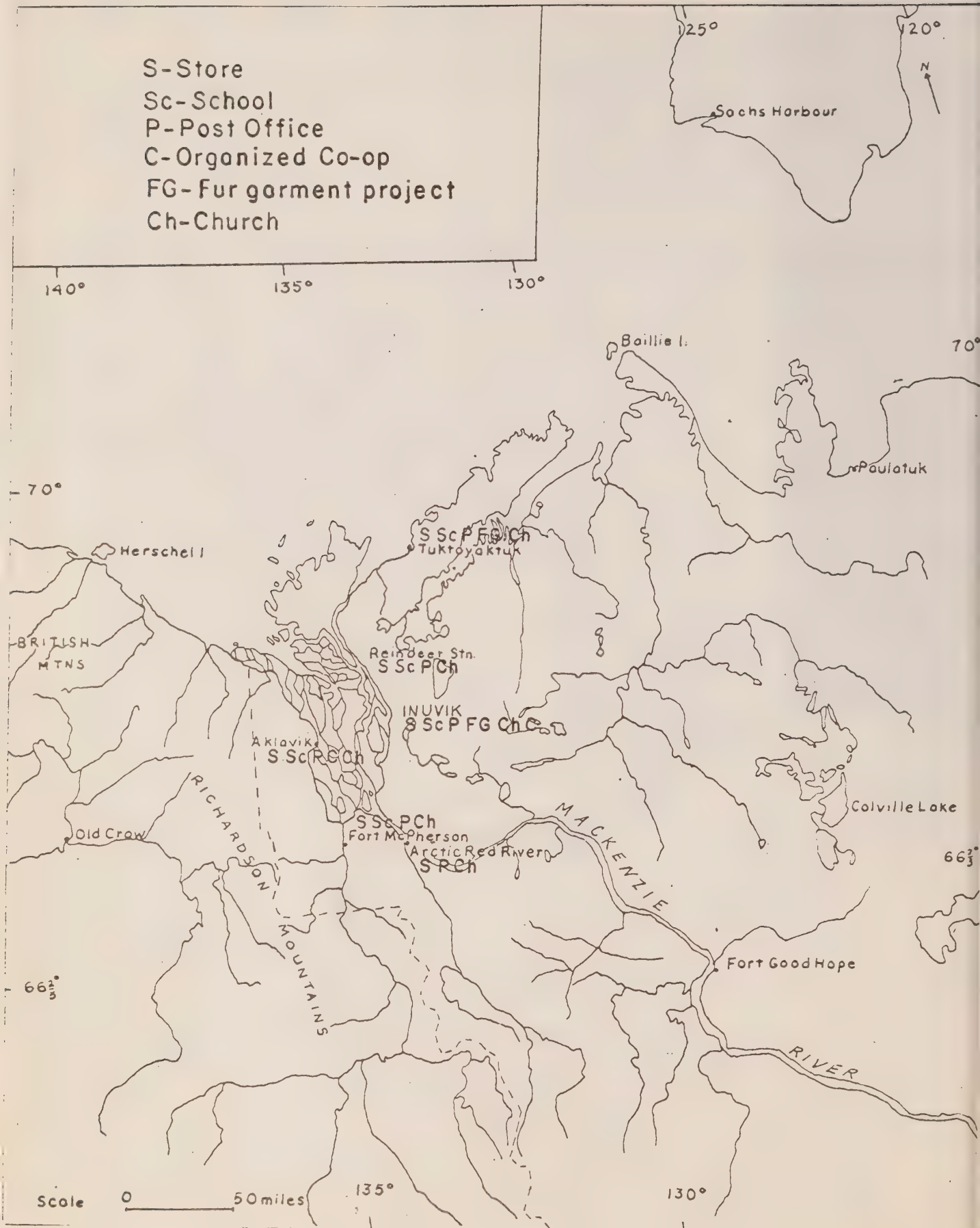
N-Nursing Station (NH)

R-R.C.M.P. Detachments





S-Store  
 Sc-School  
 P-Post Office  
 C-Organized Co-op  
 FG-Fur gorment project  
 Ch-Church





Department of Public Works

- Federal Property
- Management

Northern Transportation Company Ltd.

- Barge Services in season

Short distances, the availability of air transportation, both scheduled and charter, and good communication, are important in the effectiveness of administration in terms of the over-all economy, the housing, educational, and health needs of the resident populations.

In terms of facilities, Inuvik provides facilities which could not be duplicated in each of the outlying settlements except at greatly increased costs. Also, Inuvik's position as a terminal between north-south transportation and communication links, adds to its effectiveness as a regional center.

Beyond the boundaries of this report, administration on a regional basis becomes less effective, due to distance and the incipient demands exerted by the larger settlements in the lower Mackenzie region.

Population of Settlements January 1965 \*

<u>Inuvik</u>	<u>White</u>	<u>Metis</u>	<u>Eskimo</u>	<u>Indian</u>	<u>Total (1)</u>
	1,367		646	245	2,290
Hostel	(102)		(270)	(114)	(486)
Aklavik	105	134	277	158	674
Fort McPherson	29	158	12	315	514
Arctic Red	5	21	-	83	110
Peindeer					
Station	9	-	60	-	69
Tuktoyaktuk	40	19	400	6	465

Population of Settlements December 1965 \*

<u>Inuvik</u>	<u>White</u>	<u>Metis</u>	<u>Eskimo</u>	<u>Indian</u>	<u>Total</u>
	1355		563	340	2278
Aklavik	203		282	114	629
Fort McPherson	250		-	485	735
Arctic Red	6			72	78
Reindeer Station	6			67	73
Tuktoyaktuk	65		405	5	475

\* Source: - D.N.A., N.H.

(1) not including single navy personnel living in barracks.



These figures may be compared with the figures for 1961. They indicate more rapid increases in the resident sectors of the population, particularly among Eskimos, as well as the establishment of a large, non-permanent population in line with the growth of government agencies at Inuvik.

Population, 1961, based on Settlement Surveys

	<u>Indian</u>	<u>Eskimo</u>	<u>White</u>	<u>Total</u>
Inuvik	99	243	1,438 (white and Metis)	1,780
Fort McPherson	389	6	63 (white) 49 (Metis)	504
Reindeer Station		76	10	86
Arctic Red River	72		11 (white) 12 (Metis)	95
Aklavik	220	240	47 (white and Metis)	487
Tuktoyaktuk		330	20 (whites)	350

Births - Inuvik Resident - Non-Resident Population, 1964-65

The following births were recorded in Inuvik for the years 1964-66:

1964

<u>Whites *</u>		<u>Eskimo</u>		<u>Indian</u>		<u>Metis</u>	
M	F	M	F	M	F	M	F
27	20	5	14	5	2	none	

\* Thirty of the white infants born in Inuvik may be classified as being born to non-permanent white residents.

There were six illegitimate births among the resident populations, and one illegitimate birth among the non-permanent white resident.

1965

<u>Whites *</u>		<u>Eskimo</u>		<u>Indian</u>		<u>Metis</u>	
M	F	M	F	M	F	M	F
22	11	12	10	3		none	

\* Thirteen of the white infants born in Inuvik may be classified as being born to non-permanent white residents.

There were five illegitimate births among the permanent residents and four illegitimate births among the non-permanent residents.



The term non-permanent is applied to sectors of the population who may be classified as non-permanent, according to employment classification, and a number of other factors.

1966 Births - Inuvik

<u>Whites *</u>		<u>Eskimo</u>		<u>Indian</u>		<u>Metis</u>	
M	F	M	F	M	F	M	F
18	1	13	7	3	2	7	2
(non permanent)							
7	6	(6)		(2)		(1)	
(permanent)							
(4)							

- numbers in brackets signify illegitimate children.
- in using the term illegitimate this is used to signify father not signified on birth certificate.



Table 13

Deaths - Inuvik 1964-66Inuvik 1964

<u>Sex</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Age</u>	<u>Cause of Death</u>
M		-			Stillborn	Stillborn
M	-				Stillborn	
F	-				Stillborn	
M			-		Stillborn	
M			-		6 hours	Congenital
M	-				24 yrs.	Methyal hydrate
M		-			3 months	
					6 days	Aspiration - suffocation
M	-				61 yrs.	Coronary
F	-				1 mo. 14 days	Status Lymphaticus
F			-		61 yrs.	Generalized carcinoma

1965

M	-				Premature	
M	-				6 yrs.	Traffic accident
F		-			69 yrs.	Acute pulmonary oedema arising from pneumonia
M	-				73 yrs.	myocardial infection
M	-				51 yrs.	gunshot wound
F		-			15 yrs. 7 mos.	pulmonary embolism
F	-				42 days 4 mos.	toxemia
F	-					pneumonia - non-permanent
F	-					Stillborn - non-permanent
M		-			5 mos. 12 days	Infection - shock

1966

M	-				34 yrs.	by own hand
F	-				50 days	general infection
M			-		5 mos. 23 days	cardiac failure
M		-			67 yrs.	chronic pelvic abcess
F	-				56 yrs.	heart failure
M	-				12 yrs. 1mo.	froze to death
M	-				91 yrs.	arterial embolus
F			-		Stillborn	

\* Deaths of persons resident in other settlements in the lower Mackenzie region not included.

\* Non-permanent signifies parents were in non-permanent positions in community.



## Wage Employment in the Community

Since a majority of the adult population in Inuvik is dependent on wage employment of various forms, it is worthwhile for the purposes of this report to examine the general structure of wage employment in the community. In doing so, the employer role of various agencies will be mentioned.

### Permanent Employment - Inuvik 1966

	<u>White</u>		<u>Indian</u>		<u>Eskimo</u>		<u>Other</u>	
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
Dept. of N.A.								
Administration	3	10						
Industrial	4	1			1			
Finance	4	4						
Engineering	10	1	3		5		1	
Surface Resources	1							
Welfare	2	1			4	1		
N.C.P.C. Northern Canada Power Commission	26	1	6	1	4		2	
Hospital	18	40	3	4	3	4		2
Hostels*	4	3		7	4	4		
Teachers	49							
Education Administration	4	7						
Education Maintenance	1				5			
	126	68	12	12	25	9	3	2

Some comparisons may be made with the employment data resulting from the supplementary census of 1961. A comparison of the data shows relatively little change in the general make-up of employment in the community. Some companies supply secondary and tertiary services, have changed in ownership and trade names.

The relative stability of permanent forms of employment is indicative of the lack of industry in the community. This will continue to pose a burden on government agencies because of the necessity of providing employment for a large number of labourers who now subsist on the returns from casual labour, hunting, fishing and trapping. Expenditure on welfare is high, adding to the burden on government agencies.

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\* Not including members of religious orders



Permanent Employment, Inuvik, 1966

	<u>White</u>		<u>Indian</u>		<u>Eskimo</u>		<u>Other</u>	
	M	F	M	F	M	F	M	F
D.O.T.	18							
Navy	1		1		1		2	
D.P.W.	3	1				1		
Radio St.	5	2	1		1		2	
Inuvik Research Stn.	3	1			1			
C.W.S.	2	1 p.t.					1 p.t.	
N.T.C.	6	- employed May 1 - until Sept. 20						
Territorial Liquor Comm.	1	1 p.t.			1			
Imperial Oil	3				1			
Laundry	3	2		1	2		1	
H.B.C.	7	13						
Bank	1	3						
Store	1			1		1	1	
Bakery	2	1		1 p.t.				
Restaurant		2		1		1	1	
Newspaper	1				1			
Inuvik Development Corp.	7	5		1	1		1	
Beauty Salon	1	1						
Barber Shop				1 pt.				
Legion	1 p.t.						1 p.t.	
Bus	1	1		1				
Garage	1	1						
Taxis	5	1		1	1			
and Trucking	2			2		2		
Charter Aircraft Services	5	1			1	2		
Scheduled Aircraft	12	2						
	92	39		7	4	11	5	8
							4	



Table 15

## Employment and Income (From 1961 Supplementary Census)

Type of Work	Employer	No. Employed	Duration	Average No. Wage	Indian, Eskimo White
Gov't Projects	N.A.&N.R. & D.P.W.	47	5 mos.	450.00	3-W, 14-M, 17-E 13-I.
Gov't.	N.A.&N.R.	13	Perm.	350.00	3-W, 3-M, 4-E, 3-I
Maintenance	D.P.W.	3	Perm.	350.00	W
Public	N.C.P.C.	49	10 Casual	350.00	8-E, 6-I, 18-M
Utilities			39 Perm.		17-W.
Hotel Work	Mackenzie Hotel	12	Perm.	300.00	9-W, 3-M
Restaurant Work	Peffer's	10	Perm.	300.00	3-W, 4-M, 3-I
Store Clerks	H.B.C.	10	Perm.	300.00	W
" "	Semmlers	4	Perm.	300.00	1-W, 1-E, 2-M
Taxi Drivers	Self	4	Perm.	300.00	2-W, 2-M
Truck Drivers	Baetz Transp.	5	3 casual 2 Perm.	Indefinite	1-W, 4-E
" "	2 Others	8	6 casual 2 Perm.	Indefinite	2-W, 4-I, 2-E
Transp. Work	N.T.C.L.	5	Seasonal	Indefinite	?-E, ?-I,
" "	Y.K. Transp.	6	Seasonal	Indefinite	?-E, ?-I
Airways	P.W.A.	4	Perm.	350.00	W
Airways	Aklavik Flying Serv.	5	Perm.	350.00	2-E, 1-M
	Arctic Wings	2	Perm.	350.00	4-W
Oil Sales	Imperial Oil	2	Perm.	400.00	W
Mechanical	Cox Garage	2	Perm.	400.00	1-W, 1-I
Laundry	N.A. & N.R.	10	Perm.	300.00	1-W, 5-E
Barber	Self	1	Perm.	Unknown	1
Construction	Contractors	25	Seasonal	400.00	Approx. 7 Native
Geophysical	Various	15	Seasonal	300.00	E-5, M-10
Hospital, Gen	Hospital	31	Perm.	300.00	4-E, 5-I, 22-W
Teachers	N.A. & N.R.	34	Perm.	400.00	W
Doctors	Hospital	3	Perm.	Unknown	W
Nurses	Hospital	10	Perm.	350.00	W
Office Workers	N.A. & N.R.	54	Perm.	350.00	I-I, 2-E, 51-W
	D.O.T., D.P.W.				
Caretakers	N.A. & N.R.	3	Perm.	300.00	1-W, 2-E
	D.P.W.				
Hostel					
Domest.	R.C. & Anglican	46	10 mos.	300.00	23-E, 23-I
Total		429	312 Perm. 117 Seas		



Categories of Employment Dept. I.A. & N.D. occupied by local residents

Permanent residents in Inuvik occupy a number of categories in government employment. These range from general labour positions to advanced employment categories.

Employment with Dept. of I.A. & N.D., 1966

	<u>Inuvik</u>
Administrative	1
Technical Assistant	1
Storeman 1	1
Cook First Class	1
Heavy Duty Driver	1
Driver	2
Apprenticeships	7
Mechanic's Helper	1
Labour Foreman	3
Caretakers	1
Labourers	17

Prevailing Rate and

Casual Employment - Inuvik (Inuvik, N.W.T. 1965 D.N.A.)

<u>S</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Duration Worked</u>	<u>Prevailing Rate Casual Employees Est. Income</u>
M	-				1 mo.	\$289.41
M	-				$\frac{1}{2}$ mo.	233.03
M			-		$3\frac{1}{4}$ mos.	1,158.54
M	-				$4\frac{1}{2}$ mos.	1,683.22- eng. operator
M	-				1 year	5,200.00 - Motor Mech.
M			-		6 mos.	1,217.00
M	-				1 mo. (Oct.)	170.60
M	-				1 mo. (Sept.)	169.65
M	-				1 year	6,000.00
F	-				1 year	5,400.00 - Clerical Help
M			-		7 mos.	4,111.28 - Mech. Helper
M	-				year	5,400.00
F	-				6 mos.	2,132.00 - Clerical Help
M	-				$10\frac{1}{2}$ mos.	9,521.20 - Carpenter
M	-				1 mo. (July)	30.24
M	-				1 mo. (Aug.)	19.50
M	-				1 mo. (Mar.)	178.61
M	-				1 year	6,300.00 - Janitor



Inuvik, N.W.T. 1965

<u>S</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Duration Worked</u>	<u>Prevailing Rate Casual Employees Est. Income</u>
M	-				Feb., March	136.08
M	-				3½ mo. Feb., March, April	850.71
M	-				March	272.16
M	-				1 year	6,000.00
M	-				Aug., Sept., Oct.	797.15
M	-				2½ mos.	1,690.73
M				-	year	5,400.00
M	-				2½ mos.	730.88
F				-	year	5,400.00 - Laundry Worker
M	-				March, July, Aug.	913.36
M	-				July	117.98
M	-				June, July, Aug.	548.77
M	-				year	6,300.00
M	-				1 mo.	266.50
F	-				July	64.93
M	-				parts Feb., June, July	268.40
M	-				Aug., Sept., Oct.	523.58
M	-				July	54.81
M				-	year	6,000.00 - Storesman
M				-	June, July	258.45
M				-	June	2,133.84
M	-				year	7,800.00 - Cook
M	-				March, Dec.	4,721.48
M	-				Feb., Sept., Dec.	249.44
M	-				June, Dec.	2,744.94
M	-				Feb., March	330.34
M				-	March, April	374.23
M				-	March, August	464.61
M				-	June	113.40
M				-	part July	404.46
M				-	June, Oct.	85.56
M				-	8 mos.	5,608.00
M				-	part Sept.	235.93
M				-	July	59.54
F				-	year	4,800.00 - Laundry
M				-	4 mos.	2,705.15
F	-				Oct.	198.00 - Second Class Cook
M	-				July	76.55
F	-				March	35.91
M	-				part time	1,099.00
M				-	July, Aug., Sept., Oct.	1,730.07
M	-				year	9,100.00 - Electrician
M				-	part time	5,541.15
M				-	part time, May, June, Aug.,	290.01
M				-	part time	91.65
M	-				Jan., Sept.	3,984.04
F	-				Jan., Oct.	5,149.08
M	-				Jan., Oct.	4,768.93
M	-				June, July, Aug.	522.61



Inuvik, N.W.T. 1965

<u>S</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Duration Worked</u>	<u>Prevailing Rate Casual Employees Est. Income</u>
M	-				Jan., July, Aug.,	532.50
M	-				June, Oct.	4,696.30 - Painter
M	-				year	6,100.00 e.g. Operator
F	-				part time	397.80
M	-				Mar., June, July, Aug., Sept. 1	1,554.91
M	-				Jan., Feb., March, April	
					Sept., Oct., Dec.	1,477.93
M	-				May, June	419.75
M	-				Feb., Dec.	1,780.15
M	-				Sept., Nov.	779.51
M	-				Feb., June	425.94
F	-				-	184.04 - Clerk 2
M	-				Feb., Sept.	1,911.12
M	-				year	6,000.00
F	-				year	4,980.00
M	-				part time	1,087.81
M	-				Oct., Nov., Dec.	961.92
M	-				Feb., March, Sept.	220.54
M	-				Jan., March, Aug., Dec.	2,213.12
M	-				Oct., Nov., Dec.	903.84
F	-				Sept., Oct., Nov.	531.15
M	-				Feb.	224.91
M	-				1 mo.	250.25 - Gen. Foreman
M	-				June, July, Aug.	281.73
M	-				Casual	2,191.26
F	-				July	156.70
F	-				Aug.	17.16
M	-				June, Dec.	5,400.00 - H.E. Operator
M	-				Aug.	78.00
M	-				May, July, Sept., Oct.	1,086.86
F	-				April, May, June, July, Oct.	535.80 - Second Class Cook
F	-				Oct. Nov.	149.57
M	-				year	7,900.00 - Carp. Foreman
F	-				Aug.	10.57
M	-				June, Oct.	1,360.71
F	-				year	5,580.00
M	-				July, Aug., Sept.	1,038.03
M	-				June, Aug.	4,416.46
F	-				Aug., Nov.	733.82
M	-				June	239.80
M	-				July, Aug., Sept., Oct.	935.10
M	-				7½ mos.	5,730.00
31 53 6 17						177,487.47



Random Sampling of Ages of Men in Permanent, or Semi-Permanent,  
Employment, in Inuvik

<u>E</u>	<u>I</u>	<u>M</u>	<u>Age</u>	<u>Position Type</u>
-			38	Duty Driver and Janitor
-			31	Janitor
-			18	Janitor
-			43	Casual Labour Foreman
-			64	Technical Officer
-			30	Welfare Assistant
	-		28	Plumber's Apprentice
	-		55	Janitorial Duties
		-	31	Owner of Charter Air Service
-			43	Storesman
-			55	Hospital - Kitchen help
-			49	Janitor

Random Sampling of Ages of Men in Permanent, or Semi-Permanent  
Employment, Aklavik

<u>E</u>	<u>I</u>	<u>M</u>		
	-		64	Anglican Minister
-			49	Janitor
-			24	Community Health Worker
	-		42	Imperial Oil
		-	33	Contractor
-			62	Janitor - school
-			39	Nursing Station
	-		54	Game Warden's Assistant
-			38	N.C.P.C.
		-	36	Semi-skilled sawyer
-			36	R.C.M.P. Special Constable

Examples of Hourly Wage Rate - Inuvik 1965, paid by  
Government Agencies

1. Plumber	\$3.20 per hour
2. Carpenter	2.80 " "
3. Electrician	2.80 " "
4. Heavy Equipment Operator	2.40 " " *
5. Light Equipment Operator	2.10 " " *
6. Motor Mechanic's Helper	1.95 " " *
7. Cook second Class	1.65 " " *
8. Cook third class	1.52 " " *
9. Casual Labourer	1.89 - 1.95 per hour *
10. Steno 2	1.68 " " *

Employment Opportunities in Winter Works Programs and  
Casual Labour Programs

The employment potentials involved in winter works programs have been dealt with in the chapter on winter works. Due to the availability of permanent



and casual employment, the winter works programs are less important to the local economy than, for example, to the community of Fort McPherson.

### Permanent Employment with Crown Corporations

Employment in this category is limited to employment with the Northern Canada Power Commission and the Canadian Broadcasting Corp. The following example is presented to show the employment status of local residents with N.C.P.C. during the survey period in 1966. Long-term, permanent, residents occupy twelve of the 54 positions.

### Employment of Local Residents - Inuvik

<u>Employment Category</u>	<u>No. Employed</u>	<u>Ethnic Status</u>	<u>Estimated Annual Income</u>
Assistant Lineman	1	Metis	\$4,500-\$5,500
Operator	5	2-W, 1-E, 2-I	3,400-\$4,500
Welder	1	W	7,000 plus
Assistant Diesel Mechanic	1	Metis	4,500-5,500
Maintenance	4	2-I, 1-E, 1-W	4,000-5,000

With the exception of maintenance work, the work categories demand a certain amount of training and skills. Of all the government agencies surveyed, the Northern Canada Power Commission ranks above average in working conditions and on-the-job training potentials.

Permanent local employees receive supplementary benefits in the form of free utilities, light, fuel and water. In some cases they occupy housing owned by the Northern Canada Power Commission.

### Categories of Employment Available with N.C.P.C., Inuvik 1966

<u>Category</u>	<u>Numbers Employed</u>	<u>Salary Range</u>
Superintendents, Supervisors	4	\$9,420-\$12,000
Operator 9	3	7,600-8,200
Operator 8	12	6,900-7,500
Operator 7	3	6,000-6,700
Operator 6	2	5,340-6,000
Operator 5	3	4,600-5,200
Operator 4	11	4,000-4,600
Operator 3	4	3,500-4,020
Stenographical Accounting	2	3,400-4,800

Advancement in this organization is based on ability. Annual salary is greatly influenced by length of service, training and job experience.

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\* Occupied by local residents (Eskimo, Indian and Metis)



### Local Employment with the Inuvik General Hospital

During the survey period in 1966, twenty local residents were employed by the Inuvik General Hospital in varied categories, ranging from general domestic help to ward and nursing aids. Monthly wages ranged from \$267.20 to \$487.49.

On an ethnic basis the following categories were employed:

- 8 Indians (7 females, 1 male)
- 5 Eskimos (5 females)
- 2 Metis (2 females)
- 3 local whites (2 females, 1 male)

White women married to R.C.M.P., R.C.N., D.I.A. & N.D. and C.B.C. personnel also found employment with the Inuvik General Hospital. These found employment as three nurses, four clerks and one ward aid. Salaries ranged from \$3,000-\$5,000 per annum.

Potential increases in local employment will be achieved as larger numbers of children attain higher educational levels, and proceed into advanced courses in nursing, X-ray technician and clerical training. In vocational training, the nursing-aid course is reported to be one of the most successful courses available to local trainees, according to local authorities.

### Employment with Canadian Broadcasting Corporation

Employment opportunities with the Canadian Broadcasting Corporation are limited, in comparison with other government organizations.

#### Employment Canadian Broadcasting Corporation, Inuvik 1966

<u>Numbers Employed</u>	<u>Male</u>	<u>Female</u>	<u>Salary Range</u>
1	M(E)		\$5,000+
1		F(W)	5,000+
1	M(W)		4,000-5,000
1	M(W)		5,000+
1	M (M)		5,000+
1		F(M)	5,000+

### Canadian National Telecommunications

Employment with Canadian National Telecommunications may be divided into three main categories. These are employment in the telecommunications center, the outside plant operation, and with a line crew.

<u>Categories of Employment</u>	<u>No. of Employees</u>	<u>Ethnic Status</u>	<u>Estimated Salary Range</u>
Outside Plant			
Inspector	1	W	\$5,000 plus
District Repeater			
Attendant	1	W	5,000 plus



<u>Categories of Employment</u>	<u>No. of Employees</u>	<u>Ethnic Status</u>	<u>Estimated Salary Range</u>
Splicer	1	W	4,000 to \$5,000
Manager	1	W	5,000 plus
Toll Operators	4	W	3,000 - \$4,000
Teletype Printers	2	W	3,000 - \$4,000
Line Crew	11	10 W, 1 I	5,000 plus

Employment of local residents in this organization is limited. One Eskimo is employed with the line crew as well as an Indian from Fort Good Hope.

The toll and teletype printers are local non-permanent and semi-permanent white residents of Inuvik.

#### Department of Public Works, Inuvik

The Department of Public Works staff in Inuvik consists of the following:

<u>Permanent Employees</u>	<u>Ethnic Status</u>	<u>Casual Employees</u>	<u>Ethnic Status</u>
Housing Manager	W	1	Metis
Secretary	W	1	Eskimo
Maintenance Staff	W	1	Indian
Maintenance Staff	W	1	Eskimo
Janitorial	E (female)		

The casual labour employees are employed for a three to four month period.

#### The Future Role of Local Employees in Government Activities

There is a nucleus of responsible local employees, who for reasons of superior ability, act as key personnel in the functional set-up of government activities. This group should be encouraged to move upward in the employment sphere, through additional on-the-job training, vocational training and adult education courses. Some sense of frustration is obvious among this nuclear group of key personnel, who feel they have a superior background and knowledge of local conditions. At the same time, they often reflect insecurity in acting as intermediaries.

Emphasis should be placed on replacing the administrative support staff of non-permanent resident stenographers and general office workers. Less crowded housing and the construction of a Y.W.C.A. in the near future, at Inuvik, should provide incentives for local women, in the younger age groups, to become more involved in wage employment.

#### Local Employment with the Royal Canadian Navy

The Royal Canadian Navy constitutes a relatively minor source of local employment in the region. The total number of employees reported was seven, all of whom were reported to have incomes over \$5,000 per annum.



<u>Local Employees</u>	<u>Duration of Employment</u>	<u>Estimated Annual Income</u>
1 (Indian)	since 1962	\$5,000 plus
1 (Indian)	January 1965	" "
1 (Indian)	Quit Oct. 1965	" "
1 Metis	ceased employment October 1965	" "
1 Indian	Began employment September 1965	" "
1 Metis	began November 1965	" "
1 Eskimo	began June 22, 1965	" "

The categories of employment are exclusively in caretaker and driver capacities.

Little or no potential for increases in employment can be expected from this source.

#### The Hostels as Employment Factors in Inuvik

Both Stringer Hall and Grolier Hall are sources of employment, both for transients and semi-permanent whites, and local residents.

#### Employment - Stringer Hall 1966

<u>Administration</u>	<u>No. Employed</u>		<u>Estimated Salary Range</u>
	M	F	
Administration	1	1	\$5,000 plus
Supervisors	1	1	4,000 - \$5,000
Assistant Supervisor		1	3,000 - 4,000
		1E	3,000 - 4,000
Kitchen Help		1W	3,000 - 4,000
	2E	2E	
Night Watchman	1W		2,000 - 3,000

Permanent white residents are designated with a symbol to denote ethnic status.

#### Employment - Grolier Hall

<u>Category of Employment</u>	<u>No. Employed</u>		<u>Estimated Annual Salary</u>
	M	F	
Administration			
Supervisory Staff	4 whites	6 whites	\$5,000+
Kitchen Help and General Help	1 Eskimo	7 Indians	3,000-4,000 5,000+

#### The Northern Transportation Company

The Northern Transportation Company employed no local residents in 1966. The employees consist of an agent, permanently employed with the Northern Transportation Company, and five university students employed



for the summer. The employment season extends from May 1 to September 20. The rate of pay for summer employees is \$1.65 an hour, which is below the general average in the town. Employees increase their earnings through overtime.

In 1965, an attempt was made to employ local labour. This failed for a number of reasons, the chief one being the lack of local interest in working overtime for short periods.

Unloading of freight at the local level, from barges to holding areas, is handled by the Northern Transportation Company, and materials are temporarily warehoused or picked up from the dock area by the respective consignees. This also applies in other communities in the region.

#### Employment Data - Imperial Oil (1)

Employment data for Imperial Oil, 1965, is as follows:

##### Manager

<u>No. of Employees</u>	<u>Ethnic Status</u>	<u>Income 1965</u>
1	W	\$6,100.00
1	W	600.00
1	M	300.00
1	W	1,000.00

#### January 1966 to June 30, 1966 (2)

##### Manager

<u>No. of Employees</u>	<u>Ethnic Status</u>	<u>Income 1966</u>
1	W	2,970.00
1	E	2,169.00
1	W	350.00

#### The Hudson's Bay Company

The Hudson's Bay Company, as an employment agency in Inuvik provides employment for a staff of twenty. These are non-permanent whites, recruited locally, or in the south. Despite native populations being involved in employment with the Company elsewhere in the region, the native population has failed to take advantage of employment opportunities at Inuvik. This appears to be due, mainly, to the essentials of appearing on time, and a lack of commitment of younger residents to full-time employment.

While the salaries, (\$225-250 a month), offered are below those available in other forms of employment, this cannot be considered to be the major factor in recruiting employees, since the private store and local restaurants are staffed by local native personnel. Married women from the serviced section of town capitalize on this form of employment.

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(1) In addition casual labour was employed for unloading supplies and maintenance

(2) Casual Labour expenditures amounted to \$425.00



## Employment with Airline Companies

Employment with airline companies, centered at Inuvik, is restricted primarily to non-permanent whites. One chartering firm, owned by a Metis, employs a local Eskimo as a pilot and a Metis as a mechanic.

### Employment Data - Airlines Companies, Inuvik 1966 (1)

	<u>No. of Employed</u>
P.W.A.	2 full time (Office Staff)
Northward	1 p.t. (Office Staff)
	2 agents, 2 pilots, 1 agent,
	1 sub-agent
Great Northern Airways	1 engineer, 2 pilots, 1 agent
Arctic Wings Ltd.	1 pilot-engineer, 1 mechanic
Reindeer Air Service	1 pilot-agent, 2 pilots, 1 mechanic

## Moonlighting

Moonlighting, (holding down a second job), in off-hours, is a common practice among many non-permanent white residents. Mechanics, electricians and painters operate lucrative businesses during off-hours. (2) This is to be expected in a community where local entrepreneurs find it too expensive to import, and accommodate, skilled tradesmen from the south, for short periods. Also skilled tradesmen are virtually non-existent among the resident indigenous groups.

Navy personnel also engage in moonlighting - they tend bar, work as storesmen or drive taxis. The wives of navy personnel work as secretaries and office personnel.

## Other Employment Agencies

Other agencies in Inuvik offer limited amounts of employment on a permanent basis. Among these are the Bank of Montreal, with a staff of four, and the post-office with a staff of four. Employment with both agencies is occupied by non-permanent or semi-permanent whites. The liquor control board has two permanent employees, one white, one Eskimo, and a part-time white employee. The Inuvik Research Station is staffed with four employees, three semi-permanent whites, a local white resident and a local Eskimo. The Canadian Wildlife Service employs an ornithologist and a biologist, and up to four local persons, on a casual or part-time basis.

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- (1) The owners of the small charter firms either do their own bookkeeping or hire others on a part-time basis after hours. This also applies in the case of a construction firm in Inuvik.
  - (2) A mechanic doing private work in his off-hours is reported to have grossed \$2,000 on his own time in one month in 1966.



Religious agencies constitute relatively minor sources of employment, although the Roman Catholic Church has on its staff two priests and four sisters, who are involved in church and hostel management. The Anglican Church has a resident minister as does the Pentecostal Church. Other denominations, (Mormon), are headed by laymen or transient missionaries.

These are stable forms of employment with little potential for becoming important employment factors in the region.

#### Trade Names of Business Enterprises in Inuvik

Inuvik Development Company	Incorporated 1963
Mackenzie Hotel Ltd.	1946 (Aklavik)
Wiedeman Taxi	1940 (Aklavik)
Mackenzie Delta Construction and Bldg. Supplies	Incorporated 1964
Imperial Bank of Commerce	1958 Inuvik
Hudson's Bay Company	1957
North Star and Construction Ltd.	Incorporated 1966
Norris Taxi and Trucking	
Reindeer Air Service	Incorporated 1963
Aklavik Flying Service	1960
Semmler's Store	1959
Arctic Painting and Developing Co.	1965

#### Stores

There are two stores in the community dealing in general merchandise. The Hudson's Bay Company handles a general range of merchandise ranging from foods to clothing, furniture, equipment and hardware.

The Hudson's Bay Company store at Inuvik, is an attractive self-service store, featuring five departments specializing in various types of merchandise, ranging from food, cosmetics, clothing, hardware and footwear.

The range of merchandise is varied and attractive to both urban residents and subsistence oriented groups. The over-the-counter service at Semmler's store is in contrast to the self-service of the Hudson's Bay Company.

Semmler's store handles a more restricted range of merchandise with emphasis on food, clothing and hardware. He also handles local fish in various forms and muktuk. His store is located on the northern fringe area of the commercial core, and is patronized primarily by the population of the unserved sector.

#### Cafes and Restaurants

In addition to 25 rooms, the Inuvik hotel offers dining-room facilities, (11 tables), and a self-service lunch room with a capacity for 56 persons. A cafe with sixteen counter stools is operated in connection with the pool hall.



### Bakery

A large bakery was completed by the Inuvik Development Corporation in Inuvik 1966. By the summer of 1966, air shipments of bread were being made to other settlements in the region. Both the Hudson's Bay Company stores and the private operators were selling bread from the Inuvik bakery. The price of bread produced by the Inuvik bakery was much lower, (35 cents as compared to 65 cents for bread flown to Inuvik from Edmonton), in outlying settlements it averaged 50 cents a loaf.

### Laundry and Dry Cleaning Plant

A laundry and dry cleaning plant is located in Inuvik and is capable of meeting the needs of the community. This is an essential service in an urban community. The laundry is located in the commercial sector of the community. It is operated as a government project and employs local people. It is well patronized by all sectors of the community.

### Regular Banking Services

Regular banking services are available in the community in the form of the Imperial Bank of Commerce.

### Fire Protection Services

Fire protection services consist of a firehall and pumping equipment, located in the administrative sector of the community. The staff consists of a fire marshall and paid volunteers.

### Postal Facilities

Post-office facilities are available in the community. There is no local delivery system and mail is collected from postal boxes or general delivery wickets at the post-office.

Northbound mail is delivered three times weekly by mainline carriers.

### Furs Traded at Inuvik

Furs produced by local trappers and traded at Inuvik are supplemented by furs brought in from other settlements. Semmler, the principal dealer in furs, has received fur shipments from locations such as Sachs Harbour and Fort Franklin.

### Mackenzie Hotel Ltd., Mackenzie Hotel Gift Shop

This hotel was constructed in 1960 and occupies a central location in the community. An extension was added in 1963. In general, the hotel is well-kept and attractive. In addition to accommodation there is a dining-room, short-order cafe, cocktail lounge and beverage room. A small gift shop, handling imported souvenirs and locally made articles, caters to the transient trade.

The employment numbers fluctuate. Local residents are employed as waitresses, domestics and night watchman.



## FURS TRADED AT INUVIK

Species	1961 - 62		1962 - 63		1963 - 64		1964 - 65	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Bear, Polar	-	-	-	-	-	-	8	910.00
Beaver	143	1,952.00	72	1,023.50	198	3,278.00	344	3,094.50
Fox, Black	-	-	1	15.00	-	-	-	-
Fox, Blue	6	85.00	2	30.00	-	-	-	-
Fox, Cross	22	112.00	12	67.00	15	93.00	10	62.50
Fox, Red	16	79.00	18	116.00	71	533.00	10	66.00
Fox, Silver	3	52.00	2	18.00	5	57.00	1	15.00
Fox, White	596	8,272.00	752	14,299.70	416	9,689.50	293	4,984.60
Lynx	43	346.00	60	651.00	89	1,017.00	56	77k.00
Marten	1,082	7,942.00	942	11,254.50	2,672	36,541.20	1,645	21,425.50
Mink	312	7,248.00	418	12,255.00	577	19,306.50	289	7,597.50
Muskrat	68,465	47,925.50	59,935	69,428.75	32,920	38,277.40	19,720	21,064.25
Otter	-	-	-	-	1	25.00	-	-
Squirrel	28	8.65	24	6.20	5	2.20	25	10.90
Weasel	105	91.35	503	481.80	765	674.95	300	273.65
Wolf	-	-	-	-	1	2.00	1	5.00
Wolverine	4	185.00	2	105.00	1	50.00	1	50.00
Seal	-	-	175	1,311.00	14	332.00	864	14,099.50
		\$74,296.50		\$111,062.45		\$109,878.75		\$74,429.90



### Mackenzie Delta Construction and Building Supplies

This is a building, contracting, firm which began in 1964. The firm retails a complete line of building supplies. Supply contracts for construction materials are held with government agencies. A construction contract is held with the Roman Catholic Mission in Inuvik.

The office of this firm is located in a two-story frame building, erected in 1966. The upper story consists of apartments, which are rented, while offices and store space are available on the ground floor.

Construction materials are barged down the Mackenzie from supply points in Edmonton. This includes various grades of rough and finished lumber, insulation, roofing, etc.

Local employees are hired as needed. Skilled tradesmen are recruited for work in off-hours from other employment. Local residents and transients are also employed as the need arises.

### Inuvik Development Company Ltd.

This corporation operates a bakery, motion picture theatre, and a recreation hall. The theatre, with a capacity for 280, was constructed in 1963. A warehouse and garage is also owned by this company. Employment is limited to office staff, bakery employees and recreation hall employees.

This business is affiliated with the Mackenzie Hotel Ltd.

### North Star Service and Construction Ltd.

This company came into business as a service station in the autumn of 1965, through the purchase of a gas pump and a 1,000 gallon tank. Esso gasoline is retailed. Vehicle requirement parts are retailed and equipment is serviced and repaired in garage facilities. The proprietor is an active contractor and carries out gravel hauls, crane and winch work. Equipment includes a unit crane and four trucks.

Employment opportunities are primarily available to semi-skilled tradesmen or truck drivers. Employment fluctuates according to the season and the activity. In August 1966, seven people were employed, including two local residents.

The Imperial Oil Company in Inuvik handles the bulk of sales of gasoline for use in outboard and other types of marine engines.

### Norris Taxi and Contracting

The location of this business establishment is located on Kingmingya Road, in the unserviced section.

This business is operated by a long-term resident white, with business experience in Aklavik. The owner now operates a taxi service consisting of three taxis. He is also engaged in hauling water and garbage for the town of Inuvik. In 1966, he secured a contract for hauling gravel from Inuvik to Aklavik by water. The operator of this business owns seven trucks, ranging from one-and-a-half tons to three tons.



Employment fluctuates in accordance with the contracts held by the operator. The optimal employment role is between eight to twelve employees during the busy summer period.

#### Wiedeman Taxi

This business is also operated by a long-term white resident, who was formerly resident in Aklavik. Equipment owned in the spring of 1966, consisted of two station wagons, four trucks and a snowmobile, which is used for out-of-settlement transportation.

#### Food Sales

A large number of non-permanent residents and some local residents, purchase their food in bulk from outlets in Edmonton, and have it shipped into the community by barge, during the summer shipping season. Various types of ration systems also exist in connection with employment with government agencies.

In general, the prices for staple items in packages, cans or other types of containers, are above those in more southern communities to meet the overhead encountered in the barging and warehousing of these commodities.

#### Examples of Prices for Staple Items - Inuvik

Flour	- 12 cents a lb.
Bkg. Powder	- 59 cents a lb.
Sugar	- 16 cents a lb.
Milk - powdered	- 65 cents a lb.
evaporated	- 25 cents a can
Tea	- 1.45 a lb.
Coffee	- 1.00 a tin
Canned Meats	- 63 cents on the average per can
Canned Vegetable	- 33 cents on the average per can
Rolled Oats	- 20 cents a lb.

The greatest price differentiation exists in respect to imported fresh and frozen goods, which are brought into the region by plane during the winter period. Fresh vegetables, fruit, eggs and other commodities become extremely expensive due to air express rates.

In 1966, the major sales outlet for fresh commodities reported a large sales volume.

#### Estimated Annual Sales Volumes - Inuvik

Imported Meats - fresh and frozen	\$100,000
Eggs	30,000
Fresh fruit and vegetables	70,000

#### Prices of Petroleum Products at Inuvik 1966

Gasoline	48 cents per gallon in ten gallon kegs
Gasoline	45 cents a gallon in 45 gallon barrels



Outboard Oil	\$7.10 per case of three gallons (annual sales are estimated to be approximately 700 gallons)
Kerosene	71.6 cents per gallon in ten gallon kegs
Kerosene	64.6 cents a gallon in 45 gallon barrels (annual sales of kerosene are estimated to be 9,500 gallons)
Aviation Gas	80/87 at airport, 67 cents a gallon 80/87 in town, 65 cents a gallon 100/130 at airport, 69 cents a gallon

\* approximately 270,000 gallons sold at Inuvik annually

Motor Oils - price range \$2.00 to \$2.55 per gallon  
(annual consumption Inuvik - 15,000 gallons)

The price of petroleum products is cheaper at Inuvik than at other settlements in the region, with the greatest price differentiation existing in gasoline for boats and vehicles. Inuvik does not function as a distribution center for petroleum products to other settlements in the region. These receive petroleum shipments direct from Norman Wells.

Purchases of petroleum products are made by trappers in the Delta and by visitors to the community from other settlements.

#### Fuel Oil

Imperial Oil Ltd. is the local supply source of fuel oil with a depot and a storage capacity of 6,000 barrels.

#### Costs of Various Types of Fuel Oil at Inuvik

	Esso Fuel Oil	Heavy X	Furnace Oil
Cost (Norman Wells Refinery)	6.0¢	10.3¢	17.1¢
Transportation	7.74	7.44	7.4
N.W.T. Fuel Tax	4.0	4.0	4.0
Approximate Landed Cost	17.74	21.74	28.5
- Inuvik per gallon			
Local Delivery Charges			2.7
			<u>31.2¢</u>

#### Estimated Total Consumption

The annual estimated consumption rates for the unserved sector are 450,000 gallons of fuel oil, with an approximate ratio of three to one for winter consumption, compared to summer utilization.

#### Equipment Rental Rates

Equipment rental rates show little variation in the settlements. Since equipment is more available at Inuvik than in other settlements, the current equipment rental rates are included here.



Equipment Rental Rates - Lower Mackenzie Region 1966

<u>Trucks</u>	<u>Hourly Rate</u>
6 cu. yd.	\$10
10 cu. yd.	\$15
15 cu. yd.	\$20
<u>Heavy Equipment</u>	
Dragline	\$21
Bulldozer (450 John Deere)	\$12
Callion Grader	\$18
Bulldozer (8)	\$34
Front End Loader	\$25
D7 Tractor	\$25

The availability of equipment varies from settlement to settlement within the region. Inuvik and Tuktoyaktuk are the only two locations in the region, where equipment rental on a large scale is feasible. Elsewhere, contractors have small amounts of equipment and prefer to do work under contract rather than through a rental agreement.

Construction firms and the Federal Electric Company are willing to rent equipment on a time-available basis.

Land Values and Sales

Land sales are arranged through the Department of Indian Affairs and Northern Development. Approval for the lease, or sale of land, is secured in Ottawa. The local Advisory Council reviews applications for land and particular attention is paid to requests for commercial or industrial land. The size of land parcels is determined according to the applicant's needs and the space which is available. There is an attempt made to see that building standards are kept up.

Land Values 1966

	<u>Size</u>	<u>Price</u>	<u>Annual Leasing Fee</u>
<u>Industrial unserviced</u>		\$200.00 (\$750.00 an acre)	
<u>Commercial serviced</u>	21' frontage	\$400.00 (\$4,000.00 an acre)	
<u>Residential serviced</u>	75' x 100'	\$500.00	
<u>Unserviced</u>	no size allotment	\$200.00 (\$2,000.00 an acre)	\$25.00 a year

Government and private agencies are now locating new warehousing on the northern fringe area of the community, to avoid congestion on land more



ideally suited to commercial expansion.

The representatives of the Central Mortgage and Housing Corporation, on an inspection trip to Inuvik in 1966, recommended that land be made available for residential use at lower costs, and delays in securing land titles be reduced, to encourage private investment at Inuvik.

### School Facilities at Inuvik

School facilities at Inuvik consist of a modern 28 classroom school. There are 47 teachers. The enrolment statistics are given below:

### School Enrolment 1965

<u>No. of Teachers</u>	<u>Elementary</u>	<u>H.S.</u>	<u>Sp.</u>	<u>Pupils</u>		<u>by Ethnic Status</u>				<u>Total Enrolment</u>
				<u>Eskimo</u>	<u>M F</u>	<u>Indian</u>	<u>Other</u>	<u>M</u>	<u>F</u>	
47	23	11	8	171	193	67	77	214	167	889

### Grade Dispersion

<u>Beg.</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>
39	189	99	106	77	82	70	50	38	56	35	25	23

### Non-resident Children

Non-resident school children are drawn from settlements in the Inuvik region, where facilities of a primary or advanced nature are lacking, and from along the western Arctic coast.

The children are accommodated in Stringer and Grolier Halls. In June 1966, 295 children were being accommodated in Stringer Hall. There were 216 children reported to be resident in Grolier Hall.

The number of non-resident children from communities in the lower Mackenzie region, in 1965-1966, totalled 225. These were enrolled from the following locations.

	<u>Hostel Residence</u>	
	<u>Stringer Hall</u>	<u>Grolier Hall</u>
Aklavik	39	17
Fort McPherson	20	1
Tuktoyaktuk	13	-
Arctic Red River	-	30
Delta (Trapper Families)	23	-
Reindeer Station	21	-
DEW Line Sites*	9	2
Baillie Island	4	-
Inuvik	10	27
	148	77

### High School

Preliminary site improvement has been begun for the erection of a new



sixteen-room high school. The location of the school site is in the north-eastern sector of the settlement. Pilings for foundation requirements were laid in 1966.

The majority of parents in the outlying settlements, would prefer to have their children remain in the communities, during the course of their secondary education.

#### Distribution of Various Groups in Upper Grade Brackets

For the purposes of this report, it is interesting to examine the status of various ethnic groups through the high school grades at Inuvik. This also affords some idea of the number of children receiving advanced education within the region.

		<u>Grade 10</u>	<u>Grade 11</u>	<u>Grade 12</u>
Others (White and Metis)	male	11	5	6
	female	6	4	5
Indians	male	2	1	3
	female	6	3	1
Eskimos	male	3	2	1
	female	6	2	

A slight differentiation in age range exists between ethnic groups, but there are a number of reasons for this, and the sampling is too small for the formulation of any hypothesis, which would otherwise only tend to be exaggerated.

#### Vocational Training

Inuvik functions as an administrative center in the field of vocational training. The Superintendent of Education of the Department of Indian Affairs and Northern Development are responsible for the organization of vocational training at the regional level and the selection of candidates for vocational training elsewhere. They work closely with school principals and settlement administrators.

The current status of vocational training in the lower Mackenzie region, is illustrated in the tables given below.

#### Vocational Training Statistics

Numbers now involved in vocational training programs outside the region: 15

Numbers now involved in apprentice training programs in the region: 10  
(3 Eskimos, 2 Indians, 5 others). Numbers employed outside the region

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\* Within the region as specified in this report



as a result of 1965-66 vocational training: 9 (4 Indians, 5 others)

Numbers employed within the region as a result of 1965-66 vocational training: 2 (1 Indian, 1 other)

Numbers trained in boat building but depending on other sources of income in the region: 10 (6 Eskimos, 4 Indians)

Numbers trained in tanning outside the region: 4

Numbers trained in tanning outside the region and now employed in the tanning industry: 1

#### Placement Services Providing Means of becoming Permanently Employed

While a placement service has existed since 1959 at Inuvik, employment records have not been kept on a long-term basis. Many of the casually employed have some background in permanent employment or vocational training.

In view of the limited returns from the subsistence economy, and the seasonal availability of casual labour opportunities, the need for permanent employment continues to be obvious in the region. However, potentials for increases in permanent employment in the region are primarily with government agencies.

There is a need for increased labour mobility, to meet both seasonal and permanent employment opportunities elsewhere. In effect, this means equipping the local labour force for employment in other parts of Canada and offering every encouragement for resettlement elsewhere. Programs of this nature have been developed in southern Canada.

Over the long-term, education of the younger age groups should bring about increased out-migration from the region, in response to economic opportunities elsewhere.

There has been little interest shown, on the part of local residents, in commercial and business courses, which would fit them for positions in employment categories, which are now occupied in by non-permanent white government organizations.

#### Inuvik General Hospital

As with the school facilities, the hospital facilities are modern and well-staffed.

The Inuvik General Hospital is a 100-bed hospital, operated by Northern Health Services. There are three patient wings, medical and pediatric, tuberculosis and medical, and maternity and surgery.

Accommodation is provided for non-local employees in D.P.W. housing or in the case of nurses, in a nurses' residence. Local employees are expected to provide their own accommodation.

Among the professional staff are the following:



3 doctors	1 x-ray technician
23 nurses	2 lab technicians
20 nursing aids	1 dietician
3 public health nurses	
2 dentists	

The doctors, public health nurse and dentists visit other settlements in the lower Mackenzie region, both on a periodic basis, and to deal with emergencies, which arise from time to time.

### Canadian Broadcasting Corporation

The radio station at Inuvik is an important means of personal communication. It is considered to be of great importance to local residents, who make use of its service in passing messages to relatives and friends, located in other settlements or on the land. It also provides a means of communication between government and private agencies and local populations. Transistor radios are used in outlying camps.

Special programs are provided in Eskimo and Kutchin. Folklore and Eskimo and Indian legends are broadcasted as a regular series.

### The Drum

The Drum, a weekly newspaper published at Inuvik, (circulation circa 950), was established in 1965. (1) Considerable emphasis is placed on regional development and expanding the economic potential. One column regularly is written in Eskimo, while articles in Kutchin appear less frequently.

### Closed Circuit T.V.

The semi-permanent and transient white population has manifested considerable interest in closed circuit T.V. and the possible establishment of a station at Inuvik.

### Commercially Organized Recreation Facilities

Commercially organized recreational facilities consist of a pool hall, a 280-seat theatre, a cocktail lounge and a beer hall. These are well patronized by local residents and transients. The facilities are closely grouped in the commercial core of the community.

### Clubs and Organizations

There is a proliferation of clubs and organizations as might be expected in a northern community with a large non-resident population. (2) Forty-eight organizations exist in the community.

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(1) A magazine and pocketbook outlet is part of this enterprise.

(2) For a detailed discussion of community structure see: Maillot J. Community Structure - Inuvik - summer 1965. Northern Co-ordination Research Centre, Department of Indian Affairs and Northern Development, Ottawa - unpublished manuscript.



## VOCATIONAL TRAINING PROGRAM 1965-66 - Outside the Region

	E	I	O	Residence	Date Course Commenced	Length of Course	Technical	Vocational	Completed	Employed	
										Locally	Elsewhere
Male	0	18	Inuvik	21-6-65	12 mos.			Nurses Aid			-
Male	0	18	"	2-5-66				Power			
								Electrician	24-6-66	-	
Male	0	21	"	13-9-65	10 mos.		Industrial				
							Electrical		17-5-66		
Male	0	16	"	29-4-66	2 mos.		Technical	Building			
								Contractor	24-6-66	?	
Female	1	19	Ft. McP.	25-10-65	10 mos.		Nurses Aid				-
Female	0	21	Inuvik	17-1-66				Clerk		?	
								Typist.	3-5-66		
Male	0	28	Aklavik	15-4-65			Civil Tech.		19-5-66		-
Female	E		"	2-5-66				Tanning	4-6-66	-	
Male	1	24	Inuvik				on course-details	unknown			
Female	1	22	Ft. McP.	21-6-65				Nurses Aid			-
Female	0		Inuvik	25-10-65	12 mos.			Nurses Aid			-
Female	0	20	"	16-8-65	12 mos.			Nurses Aid			-
Female	1	21	Ft. McP.	25-10-65	12 mos.			Nurses Aid			-
Female	E	24	Inuvik	7-9-65				Aid School	31-5-66	-	-
Male	0	23		20-9-65	10 mos.		Radio Op.				-
Female	1	19	Ft. McP.	20-9-65	12 mos.			Nurses Aid			-

\* Elsewhere - outside of Lower Mackenzie Region



Local Apprenticeship Programs

E	I	O
-	-	-

M	0	Tuk.	Heavy Duty Mechanics	Self-employed trapper
M	1	Inuvik	Plumbers	Casual Labourer
			Apprentice	Commenced 66
M	0	"	Heavy Duty Mechanic	still training
M	1	"	Diesel Mechanic	still training
M	0	"	Heavy Duty Mechanic	still training
M	0	"	Electrician	still training
M	E	"	Motor Mechanic	still training
F	0	"	Hospital	Commercial
			Cook	still training

Marine Engine Room Training

M	1	Aklavik	on training	Halifax
M	1	Ft. McP.	"	"

Boat Building Course

E	I	O
-	-	-

M	E	Tuk	completed
M	E	Tuk.	completed

Naden Marine Training Course

M	1	Ft. McP.
M	1	Aklavik
M	1	Ft. McP.

Boat Building Inuvik

M	E	Tuk.	completed
M	E	Tuk.	completed
M	E	Tuk.	completed
M	E	Aklavik	completed



### Churches

Three churches are functional on a regular basis. These are the Roman Catholic, Anglican and Pentecostal churches. Other religious organizations are present in the community. The Roman Catholic Church is particularly active in a community sense. Clergy of the three established churches speak on the radio from time to time.

### The School

The school facilities provide a focal point for community activities and are extensively used for recreation and public meetings. Until 1967, the library was housed in the school. Construction was started on a library building located in the commercial core, between the bank and the liquor store.

### N.C.R.C.

The Northern Co-ordination research centre provides facilities for meetings of various organizations and clubs in the community. The library facilities are open to the public. Educational films are shown periodically.

### Population of the Unserved Area

In the course of the survey, a population count was made of the unserved sector. The population tends to be fluid with numbers changing, due to many factors. The subsistence-oriented, casually employed, part of the population disperses to locations on the land during the winter, and there is also a dispersal during the summer for fishing and whaling. Transients from other communities, in the lower Mackenzie region, add to the population, for varying intervals.

The population statistics for the unserved area are based on a survey of the Eskimo, Indian, Metis, local whites and new white families who have settled on a permanent basis.

Considerable fluctuations in population occur during the summer, in response to casual labour opportunities etc.

### Family Units

The survey revealed the following in regard to the number of family units in the unserved sector. The family units are distinct from young single persons or older people without dependents.

### Family Units

<u>Eskimo</u>	<u>Indian</u>	<u>Others</u>
45	19	45 (White and Metis)

### Single

<u>Eskimo</u>	<u>Indian</u>	<u>Other</u>
5	27	10 (White and Metis)



Population Statistics - Unserviced SectorPopulation by Age and Sex

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
1 or less	33	22	55
2	20	19	39
3	26	22	48
4	13	19	32
5	26	13	39
6	18	23	41
7	12	14	26
8	17	13	30
9	13	10	23
10	12	12	24
11	7	16	23
12	11	15	26
13	11	10	21
14	9	9	18
15 - 20	41	45	86
21 - 25	28	27	55
26 - 35	52	43	95
36 - 45	38	38	76
46 - 55	23	20	43
56 - 64	5	7	12
65 and over	12	8	20
<hr/>			
TOTAL	427	405	832

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Note: The above population does not include persons living in the residential area serviced by the utilidor system or in the co-operative housing area.



Population By Age Groups

0 - 14		15 - 64		65+	
Can.	Inuvik	Can.	Inuvik	Can.	Inuvik
34%	45%	58%	44%	8%	2%

Population by Age Groups

	0 - 21	0 - 14	15 - 64	65+
Male	269	228	187	12
Female	262	217	180	8
Totals	531	445	367	20
Percentage	63.8%	53.4%	44.1%	2.4%

Comparison with Arctic District and Canada

Arctic District (1965)	60%	40%	51.2%	1.8%
Canada (1961)	42%	34%	58.4%	7.8%
Inuvik (1966)	63.8%	53.4%	44.1%	2.4%



The single population is much less stable than the family units.

Random Sampling of Family Size - Inuvik 1966, Unserviced Section

<u>No. of Persons in Family</u>	<u>No. of Family Units</u>			
	<u>Eskimo</u>	<u>Indian</u>	<u>Metis</u>	<u>Whites</u>
up to 3	11	4	3	8
4 - 6	16	8	7	14
7 - 8	4	3	2	6
9 - 10	6		1	2
11 - 12	3	1	3	1
13 - 14	2		1	
15+				

Housing in the Serviced Sector

Two hundred and fifty-four units of varying types, are maintained in the serviced sector in Inuvik, to meet the needs of a large non-permanent white population, employed in varying categories with government agencies, crown corporations, as well as military personnel.

Number of Housing Units by Department

<u>Occupying Department or Owner</u>	<u>Single Dwelling</u>	<u>Type of Unit</u>		<u>Total</u>
		<u>Row Housing</u>	<u>Single Staff</u>	
Indian Affairs and				
(1) Northern Development	14	39	27	80
Royal Canadian				
(2) Navy	17	67	-	84
Post Office	-	1	-	1
Department of				
Transport	3	11	4	18
Northern Canada				
Power Commission	5	13	7	25
Northern Health				
(3) and Welfare	7	7	5	19
Department of				
Public Works	2	3	0	5
Canadian Broadcasting				
Corporation	0	3	1	4
Royal Canadian				
Mounted Police	5	3	1	9
Canadian National				
Telecommunications	0	2	1	3
Private	6	0	0	6
TOTALS	59	149	46	254



- (1) Approximately 46 teachers are included in this group.
- (2) Single members of the navy living in the mess are not shown.
- (3) Employees of Northern Health and Welfare living in the nurses' residence are not included.

The Dominion Bureau of Statistics in June 1966 reported a population of 1,035 consisting of 272 households living in the serviced sector.

The Civil Service housing is bounded on the north-east by Ptarmigan Street, and on the west by Bompas Street. Row housing is connected to the main road system by in-service lanes.

South of Mackenzie Road there is an area of detached housing, both government and privately owned.

The serviced sector is separated from the unserved sector by the central school, the administrative area and the commercial core.

#### Estimated Heating Costs

The annual heating charges for various types of dwellings in Inuvik have been estimated by the Northern Canada Power Commission to be the following:

<u>Row Housing</u>	3 bedroom	\$512.50	utilidor system
	4 bedroom	590.00	

#### Detached Housing

3 bedroom	\$610.00	utilidor system
	695.00	

<u>512 Cabin</u>	512 square feet	\$368.00	(based on an estimated annual consumption of 1,200 gallons of oil at 30.7 cents)
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During the survey, heating costs were discussed with residents of varied housing types in the unserved area. The majority of residents quoted larger annual heating costs, (\$500.00), for standard 512 houses. Larger heating costs were most often quoted by native families with a large number of children, who constitute a heat factor loss, since they are continually opening doors. Less economy in meeting heating costs is to be expected from native families. It should be noted that heating costs in the unserved sector include cooking costs.

The major consumers of wood in the community are those families resident in the tent-town section. These collect their firewood from the surrounding area. In the summer they use scrap wood from construction projects. Wood heaters and cookstoves are also used by a number of families in more substantial housing.

#### Public Housing in Inuvik

In order to meet the needs of local residents, in regard to housing, the government maintains seventy housing units in the unserved sector.



Of the seventy housing units, forty-six are provided on a welfare or semi-welfare basis, and minimal or no rents are collected. The remaining twenty-four units are tental units occupied by permanently employed local residents of varying ethnic status. The total annual revenue for rental units amounts to approximately \$7,710.

Public housing is dispersed through the unserved sector of the town.

A housing survey of the unserved sector was completed in 1966. A number of residences have been built by non-local persons, either employed with government agencies or owners, and employees of private agencies. Distribution of housing and income range among ethnic groups, is best shown by the following table.

#### Family Income of Occupants

##### Ethnic Origin of Family

	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
Less than \$1,000	4	5	3	10	1	1
\$1,001 - 2,000	20	102	6	25	6	30
2,001 - 3,000	4	17	3	8	2	12
3,001 - 4,000	13	72	6	40	5	23
4,001 - 5,000	13	87	4	30	13	65
5,001 and over	19	131	2	17	32	157
Totals	73	414	24	130	59	288

The development of private housing by recent immigrants to the region, is indicative of a commitment to the community, and of northern living. There are certain advantages to living in the unserved community, which are not available in the served sector. Contact with local groups is easier, and the atmosphere is less restrictive, than that experienced by residents living in the austere environment of government housing.

#### Employment of Family Heads

##### Ethnic Origin of Family

<u>Employer</u>	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
Federal Gov't	41	274	11	84	27	146
Territorial Gov't	0	0	0	0	0	0
Municipal Gov't	0	0	0	0	0	0
Private Enterprise	7	36	2	6	15	53
Self-Employed	1	2	1	4	8	35
Casual Employment	17	89	8	28	7	52
Pensions	7	13	2	8	2	2
Totals	73	414	24	130	59	288



## Rental Housing

The concept of rental housing is well-established at Inuvik. Rental housing is available on a small scale from private owners in the unserviced sector of the town. In 1966, there were six privately owned houses reported as being rented. Little distinction is shown in respect to ethnicity and rental agreements depend on ability to pay average monthly rentals of \$40.00 a month. (1) Some of the rental housing was below the low standards for the unserviced sector. The units being rented ranged in type from tent frames to a two-story frame house.

## Co-operative Housing Area

The co-operative housing area is located on the eastern side of the town, between Innuvit road and Loucheux road. So far, fourteen Eskimo families and one Metis family have built houses in this area. The Eskimos are employed by various government agencies on a permanent basis, while the Metis is a successful entrepreneur in the community. Pre-fab Muttart housing was ordered from Edmonton and was shipped by barge down the Mackenzie River. The housing units are quite attractive. Eight of the families have six or more children, and the three-bedroom homes tend to be crowded.

In many respects the co-operative area tends to consist of the "elite" among local Eskimo, Indian and Metis who are permanently employed, primarily with government agencies.

The houses are not connected to the utilidor system. One white member of the housing co-operative has located in the serviced area, and his house will be connected to the utilidor system. Another member of the housing co-operative, a white married to an Eskimo, lives in the unserviced area, away from the co-operative area.

The housing co-operative, (Innuvit Co-operative of Inuvik), was formed to meet a mutual need for housing. A block of land was secured from the government. In 1966 there was a total of thirty-seven members (whites, Indians and Eskimos).

## Tent Town

Tent town is a collection of nineteen shacks and tent frames, located between Franklin Street and Twin Lakes. The houses are occupied by semi-transient and transient Indians and Eskimos and local whites. In 1965-66, eight small plywood housing units were built by the Department of Northern Affairs and National Resources, to improve housing conditions. A water and sewage point was built in 1966.

The adult males hunt, trap and fish and supplement these activities with logging or casual labour in the town. During the autumn, winter and spring, eleven family units in tent-town disperse to trapping areas in the eastern portion of the delta, and south-east of Inuvik. Widows, and women of separated or single status find employment in the town as baby sitters, cleaning women, and in two instances as employees in the laundry.

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(1) One Indian reported paying \$70.00 a month rental for a 512.



Eleven of the nineteen housing units were poorly-built shacks and tent frames, and were below the poorest level of housing seen anywhere in the region. This is a remnant of the sixty-one shacks noted by Lotz on his visit to Inuvik in 1962. The large population existent at the time of his visit now lives in the unserviced section in better housing.

#### The Eskimo Population of Inuvik

The Eskimo population now resident on a permanent or semi-permanent basis in Inuvik, is composed of individuals and family units, from various Eskimo groups inhabiting the western Arctic of Canada and north-western Alaska. In recent decades, the Eskimo population of Inuvik was distributed over a wider area along the Arctic coast and in the delta proper. Few individuals of the Central Eskimos have been resident or are resident in Inuvik, although some have visited while working on the DEW Line or as patients or rehabilitants.

The permanent or semi-permanent Eskimo population is supplemented by visitors from the nearby settlements.

#### Indian Population of Inuvik 1966

The Indian population of Inuvik is predominantly from the lower Mackenzie region. One family came from Fort Simpson and another family originated from Old Crow. Others came from Arctic Red, Fort McPherson, Aklavik, Fort Good Hope and Fort Franklin. The large number from Arctic Red River is indicative of out-migration from this settlement. Inuvik is situated on the northern boundary of the hunting and trapping grounds of Arctic Red River Indians.

Small numbers of Hare and Slavey Indians stay in Inuvik for varying periods of time, but show less inclination towards permanent settlement than the Kutchin or Loucheux Indians of the lower Mackenzie region.

#### The Metis Population of Inuvik

The Metis population at Inuvik consists of individuals and family units from settlements within the lower Mackenzie region, as well as immigrants from outside the region. The latter have come from communities on the upper Mackenzie and Great Slave Lake areas. The majority class themselves as white, rather than Metis. (1)

#### Recent White Immigrants

The white population of the unserviced sector is composed of long-term residents, who have transferred from Aklavik during the construction phase, and recent immigrants from southern Canada. The heads of two families are employees of government agencies. Others are semi-skilled and skilled labourers. Whites engaged in secondary and tertiary industries, also live in the unserviced area, or on a fringe area behind the commercial core. Nine local entrepreneurs live in the unserviced sector.

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(1) Metis - in this context - White/Eskimo, Indian/Eskimo





PORTION OF INUVIK TOWNSITE

showing occupation of housing on an ethnic basis

Summer 1966WIN

Summer Tent Zone

MACKENZIE RIVER

LAKES

Menzies Fish Co.  
Reindeer Ant Services

Laundry

Liquor Store

Fur Garment Shop

Theatre

Hotel

Stores

Rehabilitation Center

Scale 1"=400'



Social Assistance

	Other Welfare Programs No. of Cases Receiving Assistance	No. of Cases Receiving Food Total Amount	No. of Cases Receiving Clothing Total Amount	No. of Cases Receiving Fuel Total Amount	No. of Cases Receiving Shelter Total Amount	No. of Cases Receiving Other Total Amount	No. of Cases Receiving Two Classes	No. of Cases Receiving 3 - 4 Classes
Jan. and Feb. Total	12 337.50	112 4,778.10	7 186.60	7 115.38	- -	11 41.94		
March Total	10 254.70	97 3,402.19	20 634.03	27 668.41	8 342.80	6 97.20	19	-
April Total	9 193.50	59 1,968.75	10 348.50	30 531.86	7 110.81	4 26.53	3	1
May Total	3 67.25	34 1,132.50	8 197.53	16 418.61	- -	3 26.75	6	-
June Total	7 203.75	56 2,377.41	21 501.87	24 396.35	- -	9 119.28	8	-
July Total	10 199.44	63 1,983.91	12 353.50	14 329.75	5 295.20	9 115.44	7	-
Aug. Total	7 113.85	59 2,001.75	9 305.52	13 295.75	3 71.63	5 119.50	6	-
Sept. Total	3 122.60	56 1,586.84	9 255.02	4 48.08	1 25.00	7 142.77	3	-
Oct. Total	10 355.15	42 1,687.50	12 339.54	7 87.52	- -	10 367.18	6	1
Nov. Total	5 208.00	44 1,734.00	8 354.83	15 316.76	- -	8 95.71	3	4
Dec. Total	10 253.05	54 1,912.63	19 619.90	15 410.46	1 3.00	4 40.70	11	1
	2,288.79	24,565.58	4,096.84	3,618.93	848.44	1,193.00		

\* In a number of cases more than one form of payment was requested and received by individuals.

\* Included in the category of other payments were allotments for traps, payment of light bills, etc.



### Distribution of Ethnic Groups - Inuvik

Very general groupings of Indians and Metis, and Eskimos are observable in the unserviced sector. The immigrant whites tend to stay within small areas and are distinguishable by general improvements to housing. The Eskimos have benefited from the availability of public housing. Indians moving into Inuvik from other settlements in the lower Mackenzie region, are to be found in Tent Town for varying periods until they acquire housing in the unserviced sector.

### Rehabilitation Center

Between 1959 and 1963, Inuvik was the site of an active Rehabilitation Center, sponsored by the Welfare Division of the Department of Northern Affairs and National Resources, and directed towards the rehabilitation of resident groups of the lower Mackenzie region, with particular emphasis being directed towards Eskimos. The purpose of the center was essentially to re-equip individuals and family groups for life in a changing environment. It served a half-way point for persons on their way to and from southern Canada, for medical reasons. A number of projects were initiated, such as a local produce shop, (handling seal, fish, etc.) handicrafts, and poultry keeping.

In the period between 1960 and October 1963, thirty-three rehabilitants were admitted to the Rehabilitation Center.

A decline in the number of potential rehabilitants resulted in the Rehabilitation Center becoming a center for welfare housing in Inuvik, rather than an active Rehabilitation Center. The projects have either been abandoned as economically unfeasible, or have been continued under the direction of the Industrial Division of the Department of Indian Affairs and Northern Development.

### Federal Social Assistance

During the past three years there has been some fluctuation in federal social assistance issues in Inuvik, (including Aklavik).

<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
\$66,200	\$45,400	\$81,800

### Territorial Social Assistance Expenditures

In 1964-65, Territorial Social Assistance expenditures in Inuvik totalled \$12,636.16. This expenditure may be compared to expenditures in Aklavik, which amounted to \$11,015.20 in the same year. The total expenditures for Aklavik, Inuvik, in 1963-64, amounted to \$25,964.00 of which 81 per cent was expended on food.

Both the Federal Social Assistance programs and the Territorial Assistance programs were administered by the Department of Northern Affairs and National Resources (now Department of Indian Affairs and Northern Development). In mid-1966, social assistance expenditure for Indians was included in the over-all social assistance programs handled by the Department of



## Indian Affairs and Northern Development.

Social Assistance 1965-66

The following table is presented, to afford some comparison between social assistance expenditures in various areas of the Mackenzie District, during 1965-66, under the Federal Welfare programs in the Mackenzie District. It gives a breakdown of Cause of Need, and it readily becomes obvious from the statistics that economic need is the major factor in social assistance throughout the Mackenzie District.

Distribution by Area and Cause of Need (to nearest \$100)

<u>Area</u>	<u>Voc. Tr.</u>	<u>Health</u>	<u>Dep. Child</u>	<u>Econ.</u>	<u>Misc.</u>	<u>Total</u>
Ft. Simpson	-	-	-	-	-	-
Yellowknife	-	-	100	1,400	-	1,500 *
Coppermine	-	8,200	5,000	5,300	-	18,500 *
Cambridge Bay	-	4,400	4,200	25,300	1,100	35,000 *
Spence Bay	-	2,000	2,200	17,400	300	21,900 *
Inuvik	200	11,700	18,000	33,100	200	63,200 *
Tuktoyaktuk	-	7,800	12,500	34,800	400	55,500 *
	\$ 200	\$34,100	\$42,000	\$117,300	\$2,000	\$195,600

Note: \* Estimated total issues for 12 months based on number of months reported.

The statistics for Inuvik include Aklavik. Also note that the expenditures are for a fiscal rather than a calendar year.

Potentials for Industrial Development

There has been considerable speculation in recent years as to the feasibility of encouraging industries to relocate in the Northwest Territories, on the theory that these would absorb increasing manpower resources, resulting from a decline in subsistence economies, increased centralization in the settlements, and numbers of young people entering the labour market.

In the lower Mackenzie region, economic development, beyond the production of fur and handicraft of various types, has been negligible.

Inuvik, with its abundant facilities, large population and accessibility, in terms of both water and air transportation, appears to offer the greatest potential in terms of industrial location and development in the lower Mackenzie.

Industrial sites are available at a relatively low cost. This, however, is offset by high heating and lighting costs on a longer seasonal basis, and the requirements of large scale warehousing. In Inuvik, extension of utilidor services to industrial locations would be an expensive item.



Cheap transportation is available on a seasonal basis only. This would require a careful timing of shipments and eliminates the potential of a quick return on investments in materials. (1)

Markets are limited in this region and surrounding regions by the low buying potentials of low income groups. Air transportation is expensive, in terms of transporting materials from the south to Inuvik, for the production of goods to be shipped south again.

Local labour rates paid by government agencies in the lower Mackenzie Region, are higher than those paid by construction companies, and in many cases local service industries. The labour rates paid to unskilled labour are high to offset higher costs of living. While labour is abundant, it is unskilled labour not geared to industrial demands for skill and production efficiency. At Inuvik, local labour has a tendency to "float", that is to move from job to job in the community, and individuals often exhibit exaggerated values. A variety of fringe benefits are employed by various agencies to keep key workers.

There is an over-all lack of specialized services in the community capable of meeting the requirements of industry. In effect, this would necessitate expensive air shipments of parts to be repaired or serviced and frequent delays between orders and deliveries.

Added costs are foreseen in the impending development of municipal status for Inuvik and the institution of prescribed forms of local taxation.

It appears that potentials for industrial development in the lower Mackenzie Region are restricted by locational factors, in terms of production and marketing. The responsibility for experimentation and organizing and developing small scale industries, such as a tannery, leather goods industry and meat canning industries, will likely remain with government agencies.

Whenever possible, consideration should be given to local entrepreneurs who manifest an interest in taking over government projects. The federal government should be prepared to provide technical and other forms of assistance to entrepreneurs of proven ability.

Production of specific food commodities to meet the needs of resident populations can be combined with production of northern specialty foods for an increasing southern market. Development of tannery and leather goods industries all possess potentials, in terms of local employment and economic returns. These types of projects are lacking in appeal for younger age groups who are receiving advanced training in various fields. Barring unforeseen developments, the younger age groups will leave the region in increasing numbers, to work in other more economically viable regions in the north, or to join the labour pool in

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(1) One local entrepreneur at Inuvik has successfully overcome the problem of paying for materials from the south on delivery on the strength of government contracts to supply materials.



southern Canada. There are certainly limitations for an expansion of government functions in the region to provide an expanded economic base for resident population.

### Location of Industry

#### Factors Militating Against the Successful Establishment of Small Industries

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1. Inefficient labour force - superior and average men are now being employed on a year-round basis with government agencies.
2. The high cost of labour
3. The high cost of housing and services
4. The short duration of cheap water transportation - the necessity of pre-ordering and having large inventories - long tie-up of capital
5. The limited market potential within the region
6. The absorption of the cheaper work elements in subsistence activities or handicraft production
7. The lack of specialized repair services
8. The delay in securing parts

#### Factors For Small Industries

1. It would absorb the labour pool now operating in the casual labour market.
2. It could draw on the younger age groups with no particular specialization.
3. Improved communication
4. Cheap land
5. Cheap water transportation



AKLAVIK

Aklavik, (68° 13' and 134° 59'), is located at the junction of the Enoch, Pokiak and Peel, (West Channel), of the Mackenzie River. The settlement extends for about one mile and a half along the west bank of the Peel Channel, following a sharp curve in the River. The east flank of the Richardson Mountains is located ten miles west of the settlement.

Soil Conditions

Borehole tests to an average depth of 25 feet in 1953, revealed a series of stratified fine sands, silts and organic materials. Organic material ranged from strandlike streaks to thicker strata, consisting of a heterogenous mixture of decomposed and partly decomposed matter. Coarse pebbles are almost totally absent and the soils composition consists predominantly of silt, which turns to a gumbo-like mud under heavy rain, or freeze and thaw conditions. Permafrost tests have revealed permafrost conditions at depths varying from two to three feet.

Vegetation

Local vegetation conditions are typical of those encountered in the central delta. Spruce trees occupy higher ground. On lower ground willow and alder thickets occur.

In the settlement proper, the trees and brush have been cleared from the settlement with minor exceptions. A small stand of balsam poplar occurs in the Anglican Church area, and a few spruce trees have been planted elsewhere in the community. The community is well-grassed and dead grass around buildings in the spring constitutes a fire hazard in the community.

Drainage conditions are poor, owing to the flatness of the terrain and the presence of permafrost at near-surface levels. Scattered ponds occur in the settlement behind the Roman Catholic Mission, and elsewhere in the western half of the settlement. The presence of these ponds, in addition to presenting health problems during the summer, also limits the potentials for expansion of the settlement. In 1966, the Administrator at Aklavik planned to fill in these ponded areas.

Floods

In 1961-62, the community area was completely inundated by spring floods. Permanent residents appear to accept this natural phenomenon and show little interest in building on pilings or raised foundations.

River Bank Erosion

Serious riverbank erosion has occurred west of the river bend, in the area between the docking area and the Roman Catholic Mission. Summer thawing of almost vertical, southward facing banks and waves, caused by wind and current flow, are the major factors in riverbank erosion. A road, directly in front of the Hudson's Bay Company location, is rapidly becoming dangerous for both pedestrian and vehicle traffic.







## Water Supply

River-ice forms the major source of water based on seasonal requirements. Ice is cut and stored for summer use by government and some private agencies in the community. A system of water distribution pipes is laid down each summer from a fresh-water lake, to provide for the water supply needs of the local community. This involves hauling water by pail from outlet taps. With the onset of cold weather the pipe is disconnected and the population reverts to the use of ice.

## Garbage

Garbage is periodically collected by a local contractor hired for this purpose. In the summer garbage is placed in a dumping area at the north end of the settlement. In the winter, garbage is dumped on the west channel ice.

Local contracts for supplying water and collecting garbage amounted to \$8,443 in 1965.

## Landing Facilities

Operators of scheduled and chartered aircraft on floats, use the West Channel for landing purposes during the summer. A short strip is available in front of the school and is used during the intermediate periods of freeze-up and break-up as a landing facility for wheeled aircraft.

## Docking Facilities

Docking facilities are available at Aklavik for the docking of Northern Transportation Company freight barges. A small portable dock for mooring of aircraft is also available during the summer.

The canoes, speedboats and scows of local residents are hauled up at various locations along a shore area extending for three-quarters of a mile. The mooring facilities along the western portion of the shore area, beyond the Hudson's Bay Company location is less suitable due to steep banks and the presence of groynes built to combat erosion.

## Settlement Roads

The maintenance of roads in the community of Aklavik poses a serious problem due to a lack of firm bedding on which roads can be maintained. In wet periods, the roads become quagmires of soft muck and ditching appears to be largely ineffective in draining off surface and ground water.

Various methods have been attempted to produce more satisfactory road conditions. These have included using a corduroy of slabs and willows for underbedding and the application of sawdust and wood shavings. Gravel shipped by barge from Point Separation or Inuvik is expensive.

## Out of Settlement Roads and Trails

A bombardier trail connects the settlement with Canoe Lake. This trail was built primarily for game management purposes to control



caribou hunting at Canoe Lake.

### Power Plant at Aklavik

The power plant in Aklavik with 600 K.W. capacity, is owned by the Department of Indian Affairs and Northern Development, and operated by the Northern Canada Power Commission.

### Fire Protection Services

The Northern Canada Power Commission plant supervisor is the Fire Marshall for the community. A fire truck is housed in a building behind the nursing station and is manned by volunteer firemen in the community.

### Aspects of Regional Interrelationships of the large communities in the lower Mackenzie Region

Aklavik is most closely linked to Inuvik. This stems partly from the resettlement of Aklavik families in Inuvik, during and following the construction phase in the late 1950's. Scheduled and chartered air flights, as well as boat trips and ready communication aids, closely link the two communities. Aklavik people go to work in Inuvik for varying durations, according to the availability of employment. In the recent past, the community of Aklavik has been more exposed to administration than the southern communities of Fort McPherson and Arctic Red River.

### Population

The population of Aklavik can be divided, on a basis of permanency, into two groups.

#### The Non-Permanent White Population

The non-permanent white population is concerned with administration, education, health and law enforcement. It also includes the missionaries and some of the store keepers.

1. Area Administrator - Department of Indian Affairs and Northern Development and his family.
2. Department of Indian Affairs and Northern Development Engineering staff - single male
3. Game Officer and his family
4. Northern Canada Power Commission Supervisor - single male
5. Northern Health Services - two nurses
6. Teaching Staff - Department of Indian Affairs and Northern Development - both single and married
7. Missionaries - Roman Catholic Priest and a lay brother



8. Hudson's Bay Company manager, and family and three clerks
9. Fur Garment Specialists - Man and wife team
10. Sawmill Supervisor and wife

In some instances, as in the case of the Roman Catholic priest, long-term residency makes it debatable whether to class this person as non-permanent or permanent.

Aklavik Permanent Population 1966

	<u>M</u>	<u>F</u>
70+	12	6
65-69	5	4
60-64	5	3
55-59	6	1
50-54	1	6
45-49	9	12
40-44	6	13
35-39	13	14
30-34	12	14
25-29	16	19
20-24	32	26
15-19	32	34
10-14	45	35
5-9	43	46
0-4	<u>52</u>	<u>50</u>
	289	283

Population for Aklavik includes Indian, Eskimo, Metis and Whites who may be classed as permanent residents.

The youthfulness of the population can be noted from the statistics above.

There are 172 males and 165 females in the under-twenty age groups.

Family Units - Permanent Population

The following family units were living at Aklavik during the period of the survey.

<u>Eskimo</u>	<u>Indian</u>	<u>Metis</u>	<u>White</u>
42	30	8	10

Single Adults

<u>Eskimo</u>		<u>Indian</u>		<u>Metis</u>		<u>White</u>	
<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>N</u>	<u>F</u>
14	14	9	4	3	2	9	5



Random Sampling Family Size Aklavik 1966

<u>No. of Persons in Family</u>	<u>No. of Family Units</u>			
	<u>E</u>	<u>I</u>	<u>M</u>	<u>W</u>
up to 3	5	7	2	4
4 - 6	18	12	7	4
7 - 8	11	4	1	
9 - 10	4	4	2	2
11 - 12	3	1		
13 - 14				
15+				

The single white population is composed largely of older age groups who are classified as widows or widowers. The single adult Indians and Eskimos fall into the 20-40 age group.

Occupations of the Permanent White Population - Heads of Family Units

1. Middle-aged trapper - low income from trapping in Mackenzie Delta does some casual labour - was trained as tannery worker through a vocational training course. (separated from wife - adult son lives with him).
2. Retired Hudson's Bay Company employee - worked in transport division on Mackenzie River. (married to local Metis)
3. Formerly a trapper arrived in area in 1920's, trapped Delta, Arctic coast and Peel River - now operates theatre, does some hauling by truck - wife works in fur garment industry - son is a hunter and trapper - now works for N.C.P.C. Inuvik.
4. Trapper - employed part-time by Industrial Division, N.A. & N.R.
5. Local Contractor - hauls gravel by boat - formerly active trapper - son who is married assists on contracts - is a trapper and hunter.
6. Retired trapper, trader
7. Store operator
8. Works for N.C.P.C. - formerly trapper - Arctic Coast, Darnley Bay, Mackenzie Delta - carries out contracting in his spare-time.
9. Prospector-trapper - came from Minnesota some years ago - self-employed - occasionally works
10. Local contractor - single (in his sixties) lives alone



Aklavik Births/1964

<u>S</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Date</u>	<u>Place</u>
M		-			Nov./64	I.G.H.
F			-		March/64	Fort McPherson, N.S.
M		-			May/64	I.G.H.
F			-		May/64	N.S.
M			-		April/64	N.S.
F			-		Feb./64	I.G.H.*
M		-			May/64	I.G.A.
F		-			May/64	I.G.H.*
F		-			April/64	I.G.H.
F		-			March/64	I.G.H.
M		-			Feb./64	I.G.H.
M		-			Jan./64	N.S.
F	-				April/64	I.G.H. - Is non-permanent
F				-	Jan./64	N.S.
M		-			Jan./64	N.S.
M		-			Aug./64	I.G.H.*
M		-			Aug./64	I.G.H.
F			-		June/64	I.G.H.*
M	-				May/64	I.G.H. non-permanent white
M				-	June/64	I.G.H.
M	-				June/64	N.S.*
M		-			June/64	N.S.
F		-			July/64	N.S.*
F				-	Nov./64	N.S.*
M			-		Dec./64	N.S.*
M				-	Aug./64	I.G.H.
F			-		Aug./64	N.S.
F	-				Nov./64	I.G.H.*

Totals 3 14 7 4

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N.S. - Nursing Station

I.G.H. - Inuvik General Hospital, N.S.

\* - Father Unknown

Aklavik Births/1965

M		-			June/65	N.S.*
F		-			May/65	N.S.*
M			-		March/65	N.S.*
F	-				June/65	N.S.*
M	-				Sept./65	N.S.*
M	-				Sept./65	I.G.H.*
F	-				May/65	N.S.*
M	-				Aug./65	N.S.
M			-		Sept./65	N.S.*
M				-	Aug./65	N.S.
M	-				July/65	N.S.
M	-				Dec./65	I.G.H.
M				-	Dec./65	I.G.H.
F	-				Nov./65	I.G.H.
F	-				Oct./65	N.S.
F	-				Feb./65	I.G.H.
F				-	Jan./65	I.G.H.
F	-				Jan./65	N.S.
F				-	Feb./65	I.G.H.



<u>S</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Date</u>	<u>Place</u>
F	-				Feb./65	I.G.H. non-permanent
M		-			Feb./65	I.G.H.
F		-			May/65	I.G.H.
M		-			May/65	I.G.H.
F		-			April/65	N.S.
F				-	April/65	I.G.H.
M		-			April/65	I.G.H.
1 16 4 5						

Births Aklavik 1966

<u>S</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Date</u>	<u>Location</u>
F		-			Oct./66	I.G.H.*
M		-			Sept./66	N.S.*
F			-		July/66	N.S.*
M	-				July/66	I.G.H.*
M			-		April/66	N.S.
M		-			April/66	I.G.H.
M		-			May/66	N.S.
M		-			April/66	N.S.
F			-		Feb./66	N.S.
M		-			Jan./66	I.G.H.*
F		-			Jan./66	I.G.H.
M			-		Sept./66	N.S.
F			-		July/66	I.G.H.
M				-	Aug./66	N.S.
F	-				Sept./66	I.G.H.
M			-		Aug./66	I.G.H.
M	-				Aug./66	N.S.
M		-			Dec./66	N.S.
M		-			Dec./66	N.S.
F			-		Aug./66	N.S.
3 9 7 1						



Deaths Aklavik 1964

Recent deaths and their causes are listed below:

S W E I M

M	-				79 yrs.	Uraemia
M		-				
M			-		3 mos.	gastro-enteritis
M	-				80 yrs.	carcinamatosi
M		-			4 mos.	infection
M		-			33 yr.	methyly hydrate
F		-			42 yrs.	carcinoma of pancreas

1 4 2

1965

F		-			1½ yr.	pneumonia
M		-			51 yr.	drowning
F			-		60 days	asphyxia
M	-				71 yrs.	burns
F		-			83 yrs.	natural causes

1 1 3

1966

M		-			28 yr.	malignant tumor
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### Subsistence Activities

The majority of the local population is engaged in subsistence activities for varying periods of time.

Extensive reference will be made to the hunting, trapping and fishing activities of the Aklavik people in the following chapters. In addition, the type and extent of equipment owned for these purposes will also be discussed.

Variation in equipment owned by subsistence-oriented groups and those in employment, can be noted chiefly in respect to quality of equipment, since employed persons purchase both new equipment and new types of equipment. Skidoos and snow-cruisers are purchased, first, by those who are employed, since they can readily afford to purchase and experiment with this type of equipment. Little variation in basic equipment can be noted on an ethnic basis.

In 1966, the Hudson's Bay Company store received a large shipment of skidoos in anticipation of increased sales of this equipment, resulting from increased money being available in the community from employment.

### Permanent Employment - Aklavik

Aklavik is similar to other small communities in the Lower Mackenzie region in the relative stability of permanent employment.

In recent years, only minor increases in employment can be noted in some categories, such as Northern Health Services, where a community health worker was added to the list of categories of full time employment in 1965. Local Indian and Eskimo residents are gradually assuming a more important role in permanent employment as shown by their acceptance of positions such as airline agents which demand a certain amount of decision-making ability.

### Permanent Employment - Aklavik 1966

	White		Indian		Eskimo		Metis	
	M	F	M	F	M	F	M	F
I.A. & N.D.	7	2	1		8		2	2
N.H.W.		2	1		1	1		
R.C.M.P.	3				1			
Stores	6		1			1		1
Northward Aviation				1				
N.C.P.C.	2				3			
Restaurant (owner-manager)	1			2				
Self-employed	2			1 p.t.	1 p.t.		1 p.t.	
Post office				1				
Tannery	1	1		1	1	1		
Fur Garment Co-op			1	5		5		1
Imperial Oil	1							1 p.t.
Religious	2		1					



TableAklavik Local Employment D.N.A., 1965, All Forms

<u>Sex</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Period Worked</u>	<u>Amount</u>
M			-		March, May, Sept.	204.49
M			-		May	13.23
M		-			May, August	360.05
M		-			April, May	366.50
M		-			April, May	632.21
M			-		April, May, June	194.67
M				-	April	30.24
M		-			April	37.80
M		-			April	30.24
F		-			April	6.04
M		-			May, June, July, Aug., Sept.	334.76
M		-			March, May, June	584.00
F		-			April, Sept.	160.44
M					April, Sept.	1,591.10
F				-	June	9.06
M		-			March	325.58
M			-		March	90.72
M				-	March	30.24
M				-	March	64.26
M	-				Oct.	302.40
M	-				Oct.	338.40
M				-	Oct.	485.55
M			-		Nov.	48.60
M-			-		Dec.	15.60
M		-			Nov.	7.80
M		-			Nov.	50.70
M		-			April to December	5,011.26
M		-			April to Sept.	3,436.27
M			-		Mar., April	722.66
M			-		April, July, August, Sept., Oct., Nov.	1,527.81
M		-			March to December	3,153.26
M		-			March to December	3,611.66
M			-		Feb., December	4,232.55
F			-		Feb. to December	2,494.20
M			-		Feb. to December	3,521.20
M		-			Mar., Apr., May, June, Nov., Dec.	267.50
M		-			Dec.	186.25
M		-			Oct.	23.40
F		-			July	4.00
F		-			August, Nov.	141.04
M	-				Sept.	202.23
M		-			Aug., Sept.	330.39
M	-				Aug., Sept.	250.67
M	-				July, Sept.	92.28
M	-				Aug., Sept., Oct.	538.79



Sex	W	E	I	M	Period Worked	Amount
M	-				Sept., Oct., Nov.	800.51
M				-	Oct.	25.23
M		-			Mar., Sept., Oct., Nov.	824.91
M				-	Oct.	331.60
M		-			June, July, Aug., Sept., Oct., Nov.	1,955.86
M			-		July	101.92
M					July, Sept., Oct.	271.68
M			-		July, Sept.	115.68
M	-				July, Aug., Sept., Oct., Nov., Dec.	
M			-		July, Sept.	140.23
M				-	July, Aug., Sept., Oct.	893.55
F			-		July, Aug.	22.62
F			-		July	45.30
F			-		July, Oct.	34.73
M			-		July, Aug.	105.88
M	-				July	28.00
F			-		July	28.00
M			-		July, Aug.	561.33
M		-			July, Aug., Sept.	900.90
M		-			Aug., Sept.	784.87
M		-			Aug.	213.57
M		-			Aug., Sept.	441.89
M	-				July, Aug., Sept.	263.51
M		-			Aug., Sept.	221.07
M		-			Sept.	9.25
M			-		Sept.	3.71
M			-		Sept.	30.23
M	-				Sept.	168.63
M	-				Aug., Oct.	383.76
M		-			July, Aug., Sept., Oct.	1,359.71
M	-				July	5.67
M	-				July, Aug., Sept., Oct., Nov.	1,742.65
M	-				July, Sept.	169.65
M			-		July	328.86
M			-		July, Nov., Dec.	1,050.98
M	-				July, Aug., Sept.	711.55
M			-		July, Aug., Sept.	687.68
M			-		July, Aug.	303.85
M		-			July, Aug.	616.14
M				-	July, Aug., Sept., Oct., Nov., Dec.	689.52
M		-			May, June	136.08
M		-			May, June	270.90
M		-			May, June	69.93
M			-		Mar., July, Aug., Sept.	1,081.84
M			-		June, July, Sept.	632.69
M			-		June, July	616.74
M	-				June, July	453.60
M		-			June, July, Aug., Sept.	1,198.67
M			-		June, July	191.84
M	-				July, Sept.	400.87
M				-	June, July, Aug., Sept.	1,671.60
M				-	May, June	448.88
M			-		May	128.52



<u>Sex</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Period Worked</u>	<u>Amount</u>
M	-					364.77
M			-		May	170.10
M				-	May, June, July, Sept., Aug.	2,229.68
M		-			May, June	309.96
M				-	May, June, July	644.49
M	-				May, June	241.92
	20	37	32	13		<hr/> 64,699.86

Employment and income data from the 1961 supplementary census is included here for comparative purposes with the current situation. Minor changes can be noted.

#### Employment and Income Aklavik 1961

Garment Making	Aklavik Fur Shop	21 Perm.	\$150/mo.	1 W 12 E 18 I
Office Project	Government	12 Perm. 25 (13 Seas)	400/mo.	5 W 10 I 10 E
Clerks H.B.Co.	H.B.Co.	5 Perm.	200/mo.	2 W 3 I
Delivery Imperial				
Oil		2 Perm.	300/mo.	1 W 3 I
Cafe Help and Clerk	K. Gardlund	5 Perm.		E
Power House	N.C.P.C.	3 Perm.	400/mo.	2 W 1 E
Agent	P.W.A.	1 Perm.	250/mo.	1 E
Special Const.	R.C.M.P.	3 officers 1 Perm.	200/mo.	M
Transportation and others		4 (2) Perm.	400/mo.	2 W 2 E



Northern Canada Power Commission

The starting salary for N.C.P.C. employees recruited in the settlement is \$340 to \$365 a month plus fuel and power. The hourly wage as a trainee is \$1.65. Trainees proceed from the labouring stage through to qualified operators at varying rates of time, according to ability and work performance. There were four full-time local employees, three Eskimos, and a local white in employment of a permanent nature. This work force was supervised by a non-permanent white supervisor.

In addition casual labour is hired as the need arises.

Northern Health Service

In 1966, the Northern Health Service at Aklavik, was paying \$240 a month to the local Indian girl employed to carry out domestic duties at the nursing station. A local Eskimo male employee was receiving \$300 a month.

Employment with the Hudson's Bay Company - Aklavik

The Hudson's Bay Company at Aklavik offers limited employment opportunities for local residents.

Hudson's Bay Company Employees - Aklavik 1966

<u>Non-Permanent Resident Staff</u>	<u>Estimated Annual Income</u>
Manager	\$5,000 plus
Clerk	3-4,000
Clerk	3-4,000
Clerk	3-4,000

Local Help

Clerk Handy man - Local Eskimo \$200.00 a month



Clerk - Local Metis Female                      \$185.00 a month

### Summer Help

Young Indian Male                                  165.00 a month  
 Young Indian Female                                165.00 a month

Local residents are recruited to assist in moving freight from dockside to warehouses.

The Hudson's Bay Company manager is capable and energetic.

### Small Industries Sponsored by the Government

The economic effects of small industries, sponsored by the government, has been discussed under various categories. These have bolstered the local economy and attempts to relocate such industries elsewhere, for economic reasons, are subject to strong opposition from the population as a whole.

Aklavik has been the home of two of the councillors elected to the N.W.T. Both have shown a strong sense of obligation towards their home constituents. (1)

Attitudes, in respect to government activities, reflect a local tendency to be conservative at the expense of being progressive. This conservativeness and suspiciousness in regard to government objectives has been reflected in a number of ways, ranging from petty complaints to obstructionism.

### Casual Employment by Private Agencies

Opportunities in this field are limited. The usual rate of pay is \$1.75 an hour for casual labour. Private contractors employ relatives or friends. There are three men in the community who class themselves as carpenters on the basis of experience, and these find minor amounts of employment in small-scale construction or demolition projects.

### Stores

Four stores were in operation until June 1966 when one small operator sold out to the Hudson's Bay Company. The Hudson's Bay Company erected a large, new, self-service store during the summer of 1966. Both the Hudson's Bay Company and Mackie's General store handle a wide range of merchandise. A limited merchandise outlet is also operated as part of a store-cafe complex.

### Cafe

A small cafe is in operation in the community with four booths and a juke box. A small bakery is also operated in connection with this enterprise.

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(1) These have been Knut Lang who died in 1963 and L.R. Trimble of Aklavik.



Table

## FURS TRADED AT AKLAVIK

Species	1961 -62		1962 - 63		1963 - 64		1964 - 65	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Bear Polar	-	-	-	-	-	-	-	-
Beaver	8	119.00	12	219.75	15	246.00	24	388.75
Fox, Blue	-	-	-	-	1	9.00	1	2.00
Fox, Cross	1	8.00	3	15.00	3	11.00	6	18.00
Fox, Red	3	4.50	4	17.00	6	27.50	4	17.00
Fox, Silver	-	-	-	-	-	-	-	-
Fox, White	79	913.25	3	77.50	56	1,198.00	52	555.00
Lynx	43	304.00	51	577.25	80	989.00	55	702.25
Marten	14	124.50	11	109.00	369	5,024.00	6	75.00
Mink	456	11,482.00	459	12,488.00	601	21,627.00	329	9,404.90
Muskrat	68,403	47,198.10	56,785	58,018.51	25,965	27,400.50	25,166	25,586.56
Squirrel	56	12.90	19	4.00	5	1.00	18	5.75
Weasel	33	25.75	309	183.85	516	371.10	361	188.20
Wolf	-	-	-	-	-	-	-	-
Wolverine	-	-	-	-	-	-	-	-
Seal	-	-	10	62.00	-	-	406	5,871.50
TOTALS		\$60,192.00		\$71,751.86		\$56,904.10		\$42,814.91



Local Annual Sales of Imported Foods - Aklavik

<u>Commodity</u>	<u>Average Price</u>	<u>Estimated Annual Quantity Sold</u>
Flour	13 cents a lb.	35,000 lbs.
Baking Powder	50 cents a lb.	293 lbs.
Sugar	16½ cents a lb.	29,000 lbs.
Tea	1.45 a lb.	1,316 lbs.
Tea (Bags)	90 cents a box	1,200 boxes
Coffee	1.25 - 1.35	2,944 lbs.
Powdered Milk	65-70 cents a lb.	6,800 lbs.
Evaporated Milk	25 cents a can	32,880 cans
Condensed Milk	49 cents a can	372 cans
Butter	93 cents a lb.	3,736 lbs.
Lard	35 cents a lb.	9,360 lbs.
Jam	80 cents - 1.65	1,949 lbs.
Frozen Meats	80 cents - 1.00	18,000 lbs.
Canned Meats	60 cents - 64 cents	4,420 lbs.
Reindeer Meat	65 cents a lb.	7,500 lbs.
Canned Fish		3,350 tins
Canned Fish	60 cents a lb.	300 lbs.
Frozen Fish	30 cents a lb.	1,500 lbs.
Fresh Eggs	80 cents - 1.00 doz.	4,890 doz.
Potatoes	20 cents a lb.	4,500 lbs.

Other Items

<u>Commodity</u>	<u>Average Price</u>	<u>Annual Quantity Sold</u>
Cigarettes	50 cents a pkg.	61,400 pkgs.
Tobacco	3.50 per lb. sold in ½ lb. tins	1,290 lbs.
Soft Drinks	20 cents a can	27,400 cans
Candies	20 cents a pkg.	2,000 pkg.
	10 cents a pkg.	10,000 pkg.
	60 cents a lb.	500 lbs.

<u>Food</u>	<u>Quantity</u>	<u>Average Price</u>
Rolled oats	12,200 lbs.	25 cents a lb.
Rice	3,620 lbs.	30-35 cents a lb.
Dried beans	598 lbs.	25-27 cents a lb.
Dried fruit	3,072 lbs.	50-55 cents a lb.
Biscuits	13,860 pkgs.	50-55 cents a lb.



Some comparative prices are available for the period 1952-54 for staple goods sold in Aklavik. The following prices may be compared with current prices:

	<u>1952-54</u> <u>Price per lb.</u>	<u>1966</u> <u>Price per lb.</u>
Flour	14.5 cents	13 cents
Baking Powder	55 cents	50 cents
Lard	25 cents	35 cents
Tea	1.45	1.25 - 1.35
Sugar	26 cents	16.5 cents
Powdered Milk	80 cents	65 - 70 cents

#### P.O.L. Products

The following prices were being charged for petroleum products in 1966.

#### Prices of Petroleum Products at Aklavik 1966

Gas	- 49 cents a gallon in ten gallon drums
Outboard Oil	- \$2.30 cents a gallon
Naptha	- 64 cents a gallon in ten gallon kegs
Fuel Oil	- 37.6 cents a gallon

#### Hotel

The existing local hotel burned in 1964. A new hotel is being remodelled from an R.C.M.P. barracks. In the interim, visitors to the community have either been quartered in private homes, or in transient space, made available through the courtesy of the Department of Indian Affairs, or at the Nursing Station. The new hotel will make five rooms available for transient use.

A four-booth restaurant is operated by a local white entrepreneur. The restaurant attracts large numbers of teenagers since it has a juke box. Bread is also sold from the restaurant.

#### Theatres

A local white operates a theatre in the Indian Hall. Movies are shown three or four times weekly. The films are secured through a film rental service in Edmonton. Films are also shown in the Roman Catholic Mission.

#### Federal Social Assistance Expenditures - Aklavik

The following Federal Social Assistance expenditures have been made in Aklavik since 1957-58:

<u>1957-58</u>	<u>58-59</u>	<u>59-60</u>	<u>60-61</u>	<u>61-62</u>	<u>62-63</u>	<u>63-64</u>
13,360	16,953	27,066	21,450	23,556	20,406	29,584

A great many factors are involved in social assistance expenditures. First, there is a segment of the population, which is for various



reasons, unable to be economically independent of aid in one form or another. Secondly, the wage economy is unstable and subject to fluctuations over both the long and the short term. The tendency to have large families is another factor affecting the amount of expenditures on social assistance. Resource harvesting is subject to cyclical fluctuations and fur price changes. White fox, marten, muskrat, are all affected by cyclical trends. The caribou herds may pass the settlement at a distance, or in terrain where it is almost impossible to harvest large quantities of meat.

An examination of the cause of need, indicates that economic factors constitute the major cause of need, followed by dependent children and health factors.

### Social Assistance

Social assistance and other welfare payments are administered by an officer of the Department of Indian Affairs and Northern Development.

### Welfare Expenditure - Aklavik 1965 as administered by N.A. & N.R.

<u>Amount</u>	<u>No. of Cases</u>
less than 100	2
\$200 - 300	1
300 - 400	6
400 - 500	1
500 - 600	1
600 - 700	4
700 - 800	1
800 - 900	3
900 - 1,000	3
1,000 - 1,500	6
1,500 - 2,000	2
2,000	1

Of the total number of recipients, twelve were Indians and the remainder were Eskimo. Nineteen of the recipients were women. The major category of assistance requested was food. Only four of the recipients in 1965 did not request food. These requested assistance in the form of clothing or fuel.

Eskimos in the lower Mackenzie region, appear to be more aware of the returns to be gained from manipulation of the various forms of welfare than do the Indians. This results partly from the fact they have been dealt with by persons with formal training in social work, in comparison to the Indians, whose social assistance requirements have been handled almost exclusively by Administrators or the R.C.M.P., with little or no formal training in social work.

### Welfare Expenditure - Whites and Metis - Aklavik 1965

<u>Amount</u>	<u>No. of Cases</u>
Less than \$100	3
\$100 - 200	2



<u>Amount</u>	<u>No. of Cases</u>
\$200 - 300	4
300 - 400	2
400 - 500	1
500 - 1,000	3
1,000 - 1,500	
<hr/>	
Total	15

Total expenditure amounted to \$6,910.22. Of this amount \$4,901.72 was issued to cover food purchases. A total of \$236.21 was issued to cover the purchase of fuel. The sum of \$544.08 was issued to cover clothing needs and the remaining amount was issued, in cash payments, to meet needs not covered under the above categories.

Examples of Welfare Payments made to Indians in Aklavik as handled by the R.C.M.P.

Examples are available in respect to welfare payments made to Indians in Aklavik, between July and December 1965. Deductions were made for casual labour incomes and country food.

Welfare Issues to Indians as handled by R.C.M.P. Aklavik

<u>Sex Payee</u>	<u>Dependents</u>	<u>Period</u>	<u>No. of Payments</u>	<u>Total</u>
F	4	Aug. - Dec.	6	\$675.00
F*	2	Aug. - Dec.	5	302.90
F*	4	Aug. - Nov.	2	170.00
F*	3	Aug. - Dec.	3	225.00
F (1)	-	Nov. - Dec.	2	24.84
F*	4	Aug. - Dec.	5	417.50
M	7	Aug. - Dec.	4	230.00
M	-	Oct. - Dec.	3	90.00
F*	2	Aug. - Dec.	4	255.00
M	2	Oct. - Dec.	3	160.00
M	1	July - Aug.	2	75.00
F*	4	Nov. - Dec.	2	142.00
M	1	Nov.	1	35.00
F	4	Aug. - Dec.	6	377.42
M	6	Aug. - Dec.	3	351.25
F		Nov. - Dec.	2 Fuel Only	24.85
F*	3	Aug. - Dec.	5	250.00
F (1)	2	July - Dec.	4	128.00
F	3	Aug. - Nov.	4	254.00
F	3	Aug. - Dec.	5	304.47
M		Nov. - Dec.	3	105.00
F	2	Aug. - Dec.	6	289.44
F	2	July	1	55.00
F		Dec.	1 Fuel Only	12.42

4,953.19

\* Denotes un-married mother



Estimated Total Local Income Aklavik 1965

The following is the estimated total income for 1965:

Trapping - 1964-65 season	\$46,672.00
Value of Country Food	48,000.00
Local Employment D.N.A.	64,699.86
Lumbering 1964-65 season	6,218.01
Northern Health, R.C.M.P., N.C.P.C.	30,940.00
Employment local stores, cafe	9,960.00
Post Office, Airlines Agent	4,840.00
Casual Employment - Construction Companies (est.)	12,000.00
Casual Employment local contractors	4,000.00
Value of local contracts (est.)	25,000.00
Fur Garment Industry	14,000.00
Handicrafts	2,500.00
Work for Oil Companies	6,492.00
Commercial Fishing	2,000.00
Guiding (local)	2,500.00
Winter works	5,850.00
Welfare Payments various types	43,917.96
Pensions	15,600.00
Treaty Monies	865.00
Churches	5,000.00
Family Allowances	<u>22,604.00</u>
Total	\$373,658.83

This gives an estimated per capita annual income of \$653.25. However, this does not take into consideration the inequality of income earned by individual wage earners in the community. (1)

School Facilities

School facilities at Aklavik in 1966 reached a state where the school was considered unsafe for the accommodation of teachers and pupils. As a result, classroom space was made available in warehouses, offices, etc. As a temporary solution to the problem of providing new school space, temporary prefabricated classrooms were shipped from Inuvik until new school facilities can be constructed.

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(1) R.A. Jenness (1966) stated:

*"Poverty in North America is usually defined in economic terms. The United States government defines it as an annual income of less than \$3,000 per family, or \$1,500 per single person; the Special Planning Secretariat of the Canada Privy Council defines it as a per capita monthly income of less than \$62.50."*



School Enrolment - Aklavik 1963-64

No. of Teachers	<u>No. of Classrooms</u>			<u>Eskimo</u>		<u>Indian</u>		<u>Other</u>		<u>Grade Enrolment</u>								
				M	F	M	F	M	F	1	2	3	4	5	6	7	8	9
7	5			30	33	8	15	18	19	20	16	12	18	19	18	10	2	
	<u>Elem.</u>	<u>H.S.</u>	<u>Spec.</u>															
	5	1	5															
<u>1964-65</u>	5																	
	<u>Elem.</u>	<u>H.S.</u>	<u>Spec.</u>															
	5	1	5															
7	5	1	5	35	30	13	18	22	21	36	13	20	16	24	15	11	4	

The old school had facilities for adult education, a small lending library, a rifle range, vocational training facilities, and a print shop for arts and crafts production.

Community Organization

An Advisory Council is in existence in Aklavik. Membership in the council consists of the local priest, a local white store operator, an employee of the Department of Indian Affairs and Northern Development, the Indian wife of a local white and the Indian manager of the fur garment co-operative.

The polling returns for the election in June 1966 showed a limited interest on the part of many voters in the community. Many were in the bush ratting.

The school is a centre for a number of organizations for children and teenagers.

Band Council

In 1964, the Aklavik Indians became a distinct band separate from the Fort McPherson band. The Indians in Aklavik feel that they have been somewhat neglected in comparison to the local Eskimos. Local administrative matters were handled by the R.C.M.P., prior to 1966, on the advice of the Indian Affairs Supervisor at Inuvik. The amalgamation of the Indian Affairs Branch and the Department of Northern Affairs and National Resources should ameliorate local grievances.

Many of the complaints by local Indians are related to housing and welfare. Local employment cannot be termed a major factor, although some Indians equate Eskimo employment with discrimination. The truth of the matter appears to be that Eskimos simply are more aggressive in taking up employment and remaining in it.



## Religion

Three religious institutions serve the community, the Anglican, Roman Catholic and Pentecostal churches. A small number of the local population are Roman Catholic and these are predominantly "Slavey" or Arctic Red River Indians who have settled at Aklavik. The Pentecostal faith was introduced in the 1950's and claims a number of converts particularly among the Presbyterian Eskimos who immigrated from Alaska. The Pentecostal minister is an Alaskan Eskimo with some prestige among Alaskan Eskimos in the community.

## Nursing Station

In 1965, a large nursing station complex was erected at Aklavik to replace a small frame structure previously in use. Two nurses are normally in residence.

## Community Health Worker

An Eskimo community health worker, trained in Ontario, has been employed in this community since 1965. He is now receiving further training in Edmonton.

## Common Ailments Treated at Aklavik (1)

	1964		1965	
	Native	Non-Native	Native	Non-Native
Common Cold or Influenza	268	64	314	54
Bronchitis or other Respiratory	143	24	225	29
Gastrointestinal	107	43	326	56
Ear, Nose, Throat				
Malnutrition, Anaemia				
underweight	20	1	37	10
Refractive errors	1	2	7	1
Other Eye Conditions	51	11	125	32
Dental Conditions	62	38	200	36
Gynaecological Conditions	70	20	114	47
Arthritis and Rheumatism	37	5	55	29
Skin Conditions	191	36	446	115
Fractures, Dislocations	11	5	26	8

A range of other common ailments were also treated at the nursing station. Clinics of various types are periodically held and visits are paid to homes in the community by the nursing staff. Emergency cases are quickly evacuated to Inuvik by plane.

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(1) Source - Northern Health Services



Returns of Inpatients - Aklavik Station

The following are the returns for the Aklavik Nursing Station 1963 - 65.

1963

Number of Admissions adults and children	38
Days of care	79
Newborn	7
Days of care	17

1964

Number of Admissions adults and children	26
Days of care	40
Newborn	6
Days of care	13

1965

Number of Admissions adults and children	43
Days of stay	53
Number of admissions newborn	12
Total days stay	17

Housing

A house-to-house survey in 1966, in the settlement of Aklavik and at Pokiak Point, revealed the following information in respect to family income and employment of the family heads. The 93 housing units surveyed, included a few housing units occupied by non-permanent whites employed in government agencies.

Family Income of OccupantsEthnic Origin or Family

	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
Less than \$1,000	0	0	6	23	3	5
\$1,001 - 2,000	11	76	12	55	6	48
2,001 - 3,000	4	21	6	44	3	11
3,001 - 4,000	4	23	4	32	4	22
4,001 - 5,000	6	42	0	0	1	8
5,001 and over	4	24	3	26	16	59
TOTALS	29	186	31	180	33	153

Employment of Family HeadsEthnic Origin of Family

	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
Federal Gov't.	13	85	9	68	14	44



	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
Territorial Gov't.	1	4	0	0	0	0
Municipal Gov't.	0	0	0	0	0	0
Private Enterprise	0	0	2	11	4	27
Religious	0	0	1	12	1	2
Casual Employment	14	88	12	63	10	62
Pensions	1	9	7	26	4	18
<b>TOTALS</b>	<b>29</b>	<b>186</b>	<b>31</b>	<b>180</b>	<b>33</b>	<b>153</b>

#### Distribution of Housing at Aklavik

No segregation of housing, on an ethnic basis, has occurred, with the exception of a central Indian enclave on land specifically selected for this purpose.

A mixed group of squatters-Eskimo, Indian, Metis and Whites, occupy land west of the Roman Catholic Mission.

While there have been attempts to establish row-housing, as illustrated by the group of 512 houses and Indian row-housing at the northern extremity of the settlement, the mass of settlement housing is randomly sited through the central part of the settlement.

Shack housing alternates with superior type housing, embodied in the 512 occupied by employed Eskimos and teachers. In four cases, employed Eskimos occupying government housing, were renting very sub-standard housing to other Eskimos in the community. Eskimos reported paying \$30 a month for very inferior housing consisting of scrap materials.

With minor exceptions, little attention has been paid to site conditions, and the central housing area is overgrown with weeds and grass and strewn with scrap lumber, discarded vehicles and worn-out furniture. Two local whites use their lots as depots for worn-out vehicles and boats. Privies are not commonly used in the community.

There is no central area in which dogs are maintained, although teams are commonly tied in the beach area where they can be fed or watered during the summer. In the central Indian housing enclave, dogs are tethered well away from the houses.

The problem of redeveloping the settlement is complicated by the over-all need to bring housing up to a better standard, and by the ownership of land parcels by a conservative group of people.

#### Pokiak Point

Pokiak Point, at the juncture of the Pokiak Channel and the West Channel, 1,000' across the West Channel from Aklavik, has some historical significance in being the first location of a Hudson's Bay Company trading post in the Aklavik area. There are seven family units now in residence at this location. These are Indian, Metis and White families. Minor site advantages are enjoyed as this is a good fishing locality. The houses are situated on high ground which remains quite firm, due to the undisturbed nature of the vegetation. A sheltered anchorage for







boats exists in the Pokiak Channel.

The residents have to travel across the West Channel by boat, during the open-water period, to reach the settlement facilities, stores, school, nursing station and churches at Aklavik. The houses at Pokiak Point vary from log cabins to two-storey vintage frame houses. Although conditions are suitable for gardens, local residents have made no attempts to cultivate land. A Metis trapper reported growing potatoes at his trapping location for one season.

There are three abandoned housing units at Enoch Point. These were formerly occupied by families now living in Aklavik.

Until the late summer of 1966, Pokiak Point was the site of the Aklavik sawmill. With one exception, the employees of this milling operation were drawn from Aklavik, and had to commute by boat during the summer sawmilling operation.

#### Fuel Wood

The standard value of fuel wood in Aklavik is \$20 a cord. There is no organized supply system and householders attempt to secure their requirements from the surrounding area. There have been suggestions that the larger buildings in the community, such as the school, could be heated by wood, thereby contributing to the local economy, rather than using fuel oil imported from Norman Wells.

In 1966, fifty-three per cent of the houses in Aklavik had wood ranges and nineteen per cent had wood heaters, as a supplementary form of heating. The remainder used fuel oil as a source of cooking and heating. Lignite deposits on the nearby Willow River and at Coal Mine Lake are not now being exploited as a source of fuel. Both are controlled by local whites.

Three per cent of the houses had primus stoves used primarily for cooking, and also as a supplementary form of heating in winter. Fuel heating costs at Aklavik are 37.6 cents per gallon. Some fuel is issued in the form of social assistance.

#### Social Assistance Issued in the Form of Fuel - 1965 Aklavik

	<u>Amount</u>
Eskimo (female)	83.55
Eskimo (female)	11.33
Eskimo (male)	24.84
Indian (female)	23.94
Eskimo (male)	52.68
" (female)	104.32
" (female)	79.48
" (male)	112.32
" (male)	124.20
Indian (male)	79.29
Eskimo (male)	117.78
" (female)	76.34
" (male)	60.82



Eskimo	(female)	99.36
"	(male)	124.20
"	(female)	49.68

These fuel requirements were issued in the form of vouchers for fuel oil. The male recipients were casual wage earners for at least part of the year, with the exception of two men, who had suffered from prolonged illness. With one exception, the recipients also requested and received other forms of social assistance.

### Alaskan Eskimos

The movement of "Alaskan Eskimos" into the lower Mackenzie Region occurred at varying periods during the past century. It evolved partly out of established trading patterns and partly through the appearance of disruptive influences on the local ecocystems. Both Taremiut and Nunamiut groups were involved in moving into and settling in the lower Mackenzie region. For both groups the lower Mackenzie region did not constitute a radical change in environmental conditions.

The last major movement of Alaskan Eskimos occurred in the 1940's. An Eskimo visitor from Alaska reported on the relative abundance of fur and game and five families from the Pt. Barrow area moved into the lower Mackenzie region. Aklavik is now a center for Alaskan Eskimos. Here they are the predominant Eskimo group. Elsewhere representative groups are to be found in Inuvik, and Tuktoyaktuk.

During the thirties and forties the "Alaskan Eskimos" of the Taremiut group were more coastal oriented. Some families fluctuated between Barter Island, Herschel Island, and other coastal locations. Those in Aklavik and elsewhere still maintain a close affinity to the Arctic coastal zone.

During the survey an Alaskan youth from Barter Island was encountered visiting relatives at Reindeer Station. In the spring of 1967, a family from Barter Island made a skidoo trip along the Arctic coast to Inuvik to visit relatives in the Mackenzie Delta. In the summer the trip between Barter Island and Aklavik can be completed in four days using a canoe and 18 H.P. motor.

Though some families maintain close ties with relatives in Alaska, others are less interested and are totally involved in the local ecumene. Of a sample of thirty-one Eskimo families, sixteen family heads came from locations in Alaska while three came from the Herschel Island Shingle Point area. The remaining family heads came from Aklavik, the delta and the Tuktoyaktuk-Kittigazuit areas.

### The Roots of Poverty at Aklavik

Recently completed government projects, (new nursing station new R.C.M.P. detachment buildings, a new Hudson's Bay Company store), give an aura of change to the community. Despite these recent changes, the economic base has not changed radically in the last five years. Fur garment projects, a tannery, the recently abandoned sawmill project,



have all injected money into the local economy but in insufficient quantities.

Construction projects, casual labour, winter works programs, all induce a certain complacency among resident groups, who fail to realize the shortcomings of an existence based on fluctuating incomes supplemented by seasonal resource harvesting activities.

Out-migration of the middle to older age groups, is virtually impossible, due to a lack of education and skills. The younger age groups, while better educated, are still "uneducated" in terms of obtaining suitable employment in the highly competitive labour markets in southern Canada. While this seems to be a highly negative outlook, it merely points up a chronic problem, which is not easily overcome.

Oscar Lewis, (1963), listed a number of traits common to a culture of poverty. Among these were chronic shortage of cash, unemployment and underemployment, people unskilled, crowded living quarters, early sex experience, much alcoholism, present orientation in time and a mistrust of government. All of these traits appear to be present, in varying degrees, among resident groups in the lower Mackenzie region. Aklavik among the five settlements offers the most striking example of these traits, but they are also present in the settlements of Fort McPherson, Tuktoyaktuk and Inuvik in the lower Mackenzie region and are found elsewhere in frontier communities.

### Drinking

Clairmont, (1963), commented extensively on the drinking habits of local groups in Aklavik. The situation remains relatively unchanged. Non-permanent residents criticize the chartering of planes by local residents to bring liquor from Inuvik. While this is an expensive procedure, local residents point out that it is cheaper to charter a plane and bring a case of liquor from Inuvik, than to purchase it from bootleggers in the community. Bootlegging appears to consist of occasional sales by various individuals.



FORT MCPHERSONThe Community of Fort McPherson

Fort McPherson (latitude 67° 27'N longitude 134° 53'W) is located 25 miles upstream from the mouth of the Peel River. The site location on the east bank of the Peel is an isolated flat topped hill 150 feet above sea level, having a north south trend for approximately one mile. The hill is approximately a half a mile in width. It is surrounded by the Peel River alluvial plain.

The site is well drained in contrast to the low, swampy surrounding area. Surface materials are unconsolidated glacial and fluvial deposits (4-6 feet in thickness) which overlay shale.

Local Vegetation

The settlement site has been generally cleared of trees and grass is the dominant ground vegetation. The surrounding area supports stands of spruce alternating with lower ranks of willows and alders. Birch of small dimensions occurs on higher ground.

Spring Break-up

The earlier break-up on the Peel River than on the Mackenzie River results in ice jamming at the juncture of the Peel and Mackenzie Rivers and may result in flood conditions as occurred in the spring of 1961 when flood waters rose to feet M.S.L. or thirty feet above the general river level in summer.

Break-up and Freeze-up

Break-up generally occurs in the later part of May or the first week of June while freeze-up occurs between mid-October and early November. Trappers at up-river locations such as the Caribou and Trail Rivers follow the break-up into Fort McPherson in the spring.

Navigation

Navigation hazards on the Peel River result from shifting sandbars. Indians or Metis familiar with river conditions are hired as pilots on the Peel River by oil companies moving equipment by barge.

Permafrost

Test drilling to reveal the presence of permafrost in Fort McPherson in July have revealed the occurrence of permafrost at depths varying from 12 to 48 inches depending on the surface cover.

Docking Facilities

A large sandbar, which is located offshore from the docking facilities at the northern end of the settlements, has proved to be a navigation hazard to larger boats with average drafts. Dredging operations were carried out by D.O.T. in 1965-66 to maintain water depths in the channel between the shoreline and the sandbar. A number of local residents tie their boats in this channel while

Gravel is available 100 miles unstream on the Peel River above the Caribou River



others use a river flat west of the settlement. Due to the distance from the shore and beach areas to the settlement some hunters and trappers hire trucks to carry their families and equipment between the settlement and the beach area at costs of \$3.00 a trip in a half ton truck. Use of this type of service is restricted to the major movements between bush camps and the settlement which occur in the spring and autumn.

#### Landing Facilities

During the summers aircraft equipped with pontoons land on the Peel River and taxi up a narrow channel to the docking area.

A small airstrip is located south of the settlement and is used in emergencies. A river ice strip and a small lake directly east of the settlement is used in landing ski planes in winter. Surveys were conducted by a D.O.T. survey party in 1966 to select a feasible site for the establishment of an all weather strip capable of handling larger aircraft.

#### Communications

Both radio and telephone communications are maintained between Fort McPherson and other communities.

#### Utilidor System

A small utilidor system installed by the Department of Public Works provides water and sewage facilities to government agencies in the southern portion of the settlement.

#### Water Supply

A water supply for local Indian and Metis residents is provided from a central outlet at the N.C.P.C. station. Local residents carry buckets of water by hand in summer and with drums and pails on dog sleds in winter. Residents employed with N.C.P.C. receive water deliveries by tank truck. The establishment of two additional water distribution points has been planned for the community. This will reduce the difficulties experienced in maintaining a water supply in fringe areas in the settlement.

#### Bulk Oil Storage

A 355,000 gallon tank is located in the southern area of the community. Its location is detrimental to building expansion and there are tentative plans to relocate it.

#### Sewage and Garbage

Privies and chemical toilets are used by local residents for waste disposal. Garbage collections are made periodically and garbage is hauled away in 45 gallon drums.

#### Sled Dogs

While local residents are discouraged from keeping sled dogs in the settlement, some teams are tied close to the houses. Other teams are tied near the river bank in clumps of willow in summer where they can be fed and watered by



fishermen following fish net tending operations. The majority of the dog teams are taken out to the fish camps in July. In winter dog teams are commonly kept in the settlement area. In general, the sled dogs appeared to be of good quality and well maintained by their owners.

#### Fire Protection Services - Fort McPherson

Fire fighting equipment including a pumper truck is housed in N.C.P.C. garage facilities in the central part of the community. The N.C.P.C. superintendent is the acting fire marshal and is assisted by volunteers recruited from N.C.P.C. and I.A. and N.D. staff.

#### The Department of Indian Affairs and Northern Development

As a result of the amalgamation of Indian Affairs Branch and the Department of Northern Affairs and National Resources the duties of Indian agent are handled by a local Administrator as of July 7, 1966.

#### R.C.M.P.

Two constables are stationed at Fort McPherson. A special constable is no longer employed at this location. The maintenance of dog teams for patrol work has been discontinued at this detachment in favour of motorized transport.

#### Game Branch

A game branch office is maintained at Fort McPherson and a game officer and an assistant are stationed at Fort McPherson. An overnight patrol cabin is maintained at Arctic Red River.

#### Nursing Station

A four bed nursing station constructed in 1950 is now being maintained by the Northern Health Service at the north end of the community. Two nurses are in residence. Weekly health clinics are held in the community. The construction of a new nursing station is planned for 1967. A dentist from Inuvik periodically visits the community. Doctors also visit the community from Inuvik.

#### Law Enforcement

The major law enforcement problem in the community is the production of home brew by some of the local residents and the attendant fights, drunkenness and petty thefts. Incidents of this type occur most commonly among the younger population. The older population is more discrete about its drinking habits and is critical of the drinking habits of the younger groups.

A manslaughter case arising out of a home brew party in 1965 had a stabilizing effect on the community.

The Anglican Hostel Administrator is the local justice of the peace. More serious cases are dealt with by a judicial party travelling periodically to the settlement from Yellowknife.

#### Churches

The Anglican Church is predominant in Fort McPherson. Two local families are



Roman Catholic and these are immigrants from Arctic Red River. An R.C. mission is also located in the settlement and the missionary alternates between Arctic Red River and Fort McPherson. The Intercontinental Evangelical Mission also has an establishment in the settlement with a resident missionary. No direct converts are claimed by this group, although numbers of the local Indian residents attend this church from time to time while remaining Anglican in religion.

The Anglican faith is strongly adhered to by the older Indians of the community. A new church was erected in 1965 and the resident missionary travels extensively in both winter and summer to outlying areas to visit families living at bush locations. An ordained Kutchin minister assists the Anglican missionary.

A new Anglican Church was erected in 1965 to replace one erected in 1920.

### School

A day school of seven rooms exists in the community. Both children from the hostel and private residences attend day school classes.

The school functions in some respects as a community center. Organized dances are held in the school workshop while night classes are held in other classrooms or in the residences of teachers.

An additional four room unit was erected in 1966 to meet the expanding educational needs of the community.

### Hostel Accommodation

Hostel accommodation (100 beds) is provided for the children of local residents who are engaged in hunting and trapping activities some distance from the settlement. The numbers enrolled in the hostel varies according to the subsistence activities. The hostel is operated by the Anglican Church. Accommodation and food for transient government personnel is provided on an established rate basis. Sixty-six children were in residence in September 1966.

### The Non-Permanent White Population

The non-permanent white population in Fort McPherson is concerned with administration, education, health, law enforcement, religion, and engineering maintenance in the community. The status of non-permanency is based on the fact that the family heads are subject to transfer by employment agencies and do not contemplate settling permanently in the community.

1. Area Administrator - Department of Indian Affairs and Northern Development and his family
2. Game Officer and his family
3. Teaching Staff - Married and single teachers
4. R.C.M.P. Staff - Two officers and their families
5. Northern Health Services - Two nurses
6. Anglican Hostel Staff - Two single males, two single females
7. Missionaries - Anglican Minister and his family and Intercontinental Evangelical missionary and his family
8. N.C.P.C. Staff - Supervisor and a staff of four - six
9. Hudson's Bay Company Manager and his family and two single male clerks



### Permanent White Population - Fort McPherson

The permanent white population in Fort McPherson consists of four family units. There are two store operators, one contractor and one trapper.

<u>Ages</u>	<u>M</u>	<u>F</u>
	57	79
	52	48
	55	46
		36
		22
		17
	15	16
		13
		13
	11	12
	10	12
	<u>7</u>	<u>11</u>
	7	11

This group is distinct from both the Metis group, and the non-permanent white population. There appears to be relatively little social interaction between the non-permanent white and permanent white groups in Fort McPherson, although the two groups work together with respect to day to day business of the community. The wife of one store operator is a teacher in the community.

### Indian Population Fort McPherson 1966      Metis Population 1966

	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
70 plus	14	9		2
65-69	1	6		
60-64	3	4	1	1
55-59	3	4	1	2
50-54	4	6	1	1
45-49	8	7		1
40-44	8	6	2	
35-39	3	11	1	1
30-34	16	8		1
25-29	11	20	3	1
20-24	18	22	2	
15-19	20	25	6	3
10-14	20	31	3	6
5-9	21	39	4	7
0-4	18	24	13	4
	<u>19</u>	<u>11</u>	<u>3</u>	<u>2</u>
	187	233	40	32

For treaty payment purposes the population is divided on an ethnic basis between Indians and Metis. (1) Little differentiation can be noted, however, in respect to living standards or income sources between the two groups.

Many of those in the age groups below thirty show little interest in trapping and prefer to stay in the settlement and pick-up odd jobs as they become available.



Fort McPherson Births/1964

<u>S</u>	<u>W</u>	<u>I</u>	<u>M</u>	<u>Date</u>	<u>Location</u>
M		-		Aug./64	I.G.H.
M			-	Aug./64	I.G.H.
F	-			Dec./64	I.G.H.
F		-		Nov./64	I.G.H.
M		-		Nov./64	I.G.H.
M			-	Jan./64	N.S.
F		-		May/64	I.G.H.
F		-		May/64	N.S.
F		-		Feb./64	N.S.
M			-	April/64	A.R.R.
M		-		June/64	I.G.H.
M		-		Aug./64	I.G.H.
F		-		Nov./64	N.S.
F		-		Nov./64	N.S.
F		-		Nov./64	N.S.
M		-		Nov./64	N.S.
M		-		Sept./64	N.S.
M		-		Sept./64	N.S.
M		-		Aug./64	N.S.
F			-	Dec./64	N.S.

Totals      1   15   4

1965

M	-			July/65	I.G.H.*
M	-			June/65	I.G.H.*
F	-			May/65	I.G.H.*
M	-			Oct./65	N.S.
F	-			Oct./65	N.S.
M	-			Sept./65	N.S.
M	-			Sept./65	N.S.
M	-			Aug./65	I.G.H. - non-permanent
F			-	July/65	N.S.
M	-			Dec./65	N.S.
F	-			Dec./65	N.S.
F			-	Dec./65	N.S.
F			-	Dec./65	N.S.
M	-			Dec./65	N.S.
M	-			Nov./65	N.S.
F	-			Nov./65	N.S.
M	-			Feb./65	I.G.H. - non-permanent
M	-			March/65	N.S.
M	-			Feb./65	N.S.
F	-			Feb./65	N.S.
F	-			Feb./65	N.S.
F	-			Feb./65	N.S.*
F	-			Feb./65	N.S.*
M	-			March/65	N.S.
M	-			March/65	I.G.H.*

2   20   3

N.S. - Nursing Station

I.G.H. - Inuvik General Hospital

\* - Father Unknown



Fort McPherson Births/1966

<u>S</u>	<u>W</u>	<u>I</u>	<u>M</u>	<u>Date</u>	<u>Location</u>
F		-		Aug./66	N.S.
M			-	Sept./66	I.G.H.
M		-		Sept./66	N.S.
M		-		June/66	I.G.H.*
F		-		Feb./66	N.S.
M	-			July/66	I.G.H.
M			-	Aug./66	N.S.
M		-		June/66	N.S.*
M		-		Jan./66	N.S.
M		-		Jan./66	N.S.
M R.C.M.P.	-			Jan./66	I.G.H.
M N.C.P.C.	-			Dec./66	N.S.
M		-		Dec./66	I.G.H.
F		-		Dec./66	I.G.H.
F		-		Sept./66	N.S.
M			-	Sept./66	I.G.H.
M		-		Sept./66	I.G.H.
	<u>3</u>	<u>11</u>	<u>3</u>		

Deaths - Fort McPherson 1964-66

The number of deaths in recent years and the cause of death are listed below:

	<u>Sex</u>	<u>White</u>	<u>Indian</u>	<u>Metis</u>	<u>Age</u>	<u>Cause of Death</u>
1964	F		1		7 yr.	drowning
1965	M		1		24 yr.	gunshot wound
	F		1		65 yr.	-
	M		1		1 yr.	crib death
	M		1			premature
	F		1		3 yr.	gastro-enteritis
1966	M		1		75 yr.	pneumonia
			<u>7</u>			



Family Groupings - Indians - Fort McPherson

58 Family Units  
 17 Unmarried mothers and widows with families  
 17 Single women  
 24 Single men  
 8 Widows  
 5 Widowers

Family Groupings - Metis - Fort McPherson

10 Family Units  
 1 Unmarried mother  
 3 Single men  
 2 Widowers  
 3 Widows

Bush Population

There are eighteen Indian family units which may be regarded as bush residents on the basis of amounts of time spent in the bush in subsistence activities. This group includes younger single persons and older people who are either widows or widowers.

Settlement Population Oriented to Subsistence Activities

There are thirteen Indian family units who are settlement based but dependent on the subsistence economy to some degree. Income from casual employment winter works programs, odd jobs and welfare are supplemented by returns from the subsistence economy.

Non-Treaty and Metis - Fort McPherson

There are ten family units in the non-treaty and metis group. Included in this group are three single, adult males who are trappers. Eleven of the fifteen adult males in this group are trappers. Three others work in various categories for government agencies and one works for the crown corporation. The trapper group supplement their incomes from trapping through casual labour opportunities and may be included in the total part-time labour force.



### Permanent White Population

The permanent white population consists of four families. Two of the family heads are operators of local stores. Of the remaining permanent whites, one family head is a local contractor while his son, who is also a family head, works for the Northern Canada Power Commission.

### Interaction between Metis and Indians

There appears to be little validity in using the term interaction in respect to Indians and Metis at Fort McPherson. They share common interests in terms of the subsistence economy and the limited wage economy. They readily inter-marry and hunting, trapping and fishing partnerships exist between Indian and Metis. Their attitudes towards government, non-permanent residents are much the same. The Metis are not aware of a "position" as shown by the Indians in respect to treaty rights. One extended family group is descended from a Hudson's Bay Company factor who for many years was the post manager at Fort McPherson. Two of the senior adult males have been Hudson's Bay Company employees and in addition one was formerly postmaster in the community. Others are descended from R.C.M.P. Missionaries who married local women.

### School Enrolment at Fort McPherson - 1964-65

The following are school enrolment statistics for Fort McPherson:

No. of Teachers	Elementary	High School	Ethnic Composition Students					
			Eskimo		Indian		Other	
			M	F	M	F	M	F
8	5	2	1	2	47	77	20	23

### Grade Distribution of Pupils

Grade	1	2	3	4	5	6	7	8	9	Total Enrolment
	26	27	24	24	17	20	18	14		170

Children in advanced grades attend school in Inuvik.

### Permanent Employment - Fort McPherson

Since 1961, the numbers of permanently employed have remained stable with the exception of employment with the Northern Canada Power Commission which has carried out an expansion program in the community during the past two years. The majority of local employees permanently employed in the community fall into the middle to older age groups. Exceptions may be noted in a number of minor employment categories such as employment with stores.

### Permanent Employment - Fort McPherson 1966

	White		Indian		Metis		Eskimo	
	M	F	M	F	M	F	M	F
I.A. & N.D. Teachers	3	1 p.t.	2		1			
	9	teachers						



	White		Indian		Metis		Eskimo	
	M	F	M	F	M	F	M	F
Hostel	2	2	1	p.t.8	1			
N.H. & W.	2		1	1	1			
R.C.M.P.	2							
N.C.P.C.	4						1	
Stores	4			5				
and restaurants				1 p.t.				
Private contractors	2		2					
(self-employed)								
Northward	1							
Missions	2							

The table given above closely corresponds to information on employment from a supplementary census carried out by the Department of N.A. & N.R. in 1961, and a settlement survey carried out by the Industrial Division of the Dept. of N.A. & N.R. in 1964.

#### Northern Canada Power Commission

At Fort McPherson the Northern Canada Power Commission constitutes important employment factor in the local economy.

In 1965 the installation of a larger power unit at Fort McPherson resulted in the employment of a number of men on a part-time basis.

#### Local Employment with N.C.P.C. in 1965 - Fort McPherson

<u>No. of Months Employed</u>	<u>No. of Men</u>	<u>Estimated Total Income</u>
1 or less	2	197.94
2	7	2,407.03
3	1	338.64
4	0	-
5	1	744.65
6	3	2,274.25
7	1	1,580.43
8	1	2,128.63
9	0	-
10	1	2,158.33
11	0	
12	7	22,811.96
		<u>\$34,641.86</u>

Employment figures include 20 persons of Indian status, two persons of who may be classed as Metis.

#### Employment of Inuvik Residents with N.C.P.C. in 1965 - Fort McPherson

<u>No. of Months Employed</u>	<u>No. of Men</u>	<u>Estimated Total Income</u>
6	1	\$1,202.60
9	1	2,501.03
		<u>\$3,703.63</u>



During 1966, some stabilization of employment with this agency occurred following completion of installation of the power unit.

Local Employment with N.C.P.C. 1966 - Fort McPherson January - July 1965

<u>No. of Months Employed</u>	<u>No. of Men</u>	<u>Estimated Total Income</u>
1	3	\$470.99
2	1	275.00
3	1	597.98
4	1	627.37
5	1	1,301.04
6	<u>7</u>	<u>7,309.31</u>
	14	\$9,581.69

Employment figures consist of 11 persons of Indian status and three Metis.

Employment of Non-Local Men - Fort McPherson 1966

<u>No. of Months Employed</u>	<u>No. of Men</u>	<u>Estimated Total Income</u>
1	1	201.34
2	1	979.63
6	2	3,832.11
4	<u>1</u>	<u>613.03</u>
	5	\$5,626.11

Local Employment of a casual Nature by Private Agencies

Small amounts of casual labour are used by private agencies in the community. The hourly rate of pay ranges from \$1.75 to \$2.00 an hour depending on the type of work and the skills of the persons hired to do the work. A local Indian with mechanical ability reported that he charged \$2.00 an hour.

Income Derived from Employment on Local Housing Construction  
Fort McPherson 1965

<u>No. of Workers</u>	<u>Amount Earned</u>
1	\$1,472.00
1	403.98
1	70.50
1	610.16
1	23.50
1	156.00
1	42.00
1	90.00

The work on local houses commenced in August and continued to the end of the year. This form of work continued in 1966.



Work on Houses 1966 January to end of June \*

January and June were the two months in which work was carried on in respect to housing.

<u>No. of Local Workers</u>	<u>Amount Earned</u>
1	\$219.35
1	149.50
1	31.50
1	49.50
1	14.63

Anglican Hostel

Fleming Hall, erected in 1956, is of some importance in the settlement economy in providing a substantial amount of employment available primarily to women of the community.

Local Employment 1966

<u>Category</u>	<u>Ethnic Status of Employee</u>	<u>Length of Employment to the present time</u>	<u>Estimated Annual Income</u>
Cook	Indian	2 yr. +	\$3,300.00
2nd Cook	Indian	2 yr. +	2,750.00
Kitchen Help	"	1 yr.	1,900.00
Kitchen Help	"	2 yr.	"
Laundress	"	1 yr.	"
Laundry General	"	2 yr. +	"
Help	"	2 yr. +	"
Assistant Supervisor	"	7 mo.	2,200.00
Night Watchman	White (Metis)	2 yr. +	<u>3,180.00</u>
			\$20,930.00

Local employees receive three meals per day at the hostel.

The supervisory staff consists of an Administrator, Assistant Administrator, a boy's supervisor and a girl's supervisor.

<u>Non-Resident Employment</u>	<u>Ethnic Status</u>	<u>Estimated Annual Income</u>
Administrator	W	\$5,000.00 -
Supervisor	W	4-5,000
Nurse	W	3-4,000
Girls Supervisor	W	3,900-4,000
Boy's Supervisor	W	3,900-4,000

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\* Work on housing commenced again in July 1966.



Fort McPhersonLocalIncome from D.N.A. employment all forms 1965

<u>S</u>	<u>W</u>	<u>I</u>	<u>M</u>	<u>Period Worked</u>	<u>Income</u>
M		-		July, August	414.50
F		-		Year	336.00
M		-		March, April, May	126.88
M		-		January, February	254.15
M		-		March, September	141.32
M		-		March	86.94
M		-		March, June	122.96
M		-		March	68.04
F*	-			June, October	119.28
M	-			March	90.72
M		-		March	18.92
M		-		March, August	949.67
M		-		March	148.37
M		-		-	51.98
M		-		May, June	266.49
M		-		March, October	148.80
M		-		March	46.31
M		-		March	86.94
M		-		July, December	874.47
M		-		July, August	619.57
M		-		June	52.92
M		-		March	107.73
M		-		June, September	785.85
M		-		March	68.04
M		-		May, July	35.91
M		-		January, March	32.13
M		-		March	73.71
M		-		March	88.83
M		-		March	51.98
F		-		May	51.03
M		-		January	11.34
M		-		March, September	186.68
M	-			March, June	92.02
M		-		June	16.30
M	-			April, May	110.88
M	-			May	13.44
M		-		March	64.26
M		-		March	48.20
M		-		March, June	362.94
M		-		September	78.00
M		-		June, July	338.44
M*	-			January	52.20
M	-			March	45.36
M	-			April, May	110.88
F*	-			May	13.44
M		-		January, February	441.15
F	-			January, June	225.12
M	-			May, June, October	194.52

11 34 3

\$8,725.61

\* Non-permanent whites



### Employment With Local Stores

Employment with local stores is confined to clerking and casual labour opportunities.

<u>No. Employed</u>	<u>Ethnic Status</u>	<u>Estimated Individual Annual Incomes</u>
4 female clerks	2 Metis	\$1,500
	2 Indian	1,500
1 male casual labourer	Indian	1,000
2 male clerks	White (non-permanent)	2,700 + benefits

The unloading of barges constitutes a minor form of employment. This is due to the fact that various agencies attempt to meet their labour requirements for unloading through the use of permanent or semi-permanent employees. A casual labour crew is used for a short-term period. When bulk shipments are received by the Hudson's Bay Company.

### The Use of Local Labour by Construction Firms

Construction firms engaged in government contracts normally employ substantial amounts of local labour on a short-term basis usually in the preliminary phases of construction when construction sites have to be prepared materials unpacked and moved, etc.

In 1966, at Fort McPherson, thirty-four local people found employment with Yukon construction at a wage rate of \$1.75 an hour in the preliminary phases of school construction. The employment period lasted for two months, from May 1 to the end of June. A few local workers were retained where they could render assistance to carpenters and other skilled workers.

### Future Construction

The proposed construction of a new nursing station at Fort McPherson in 1967 will provide local employment of a temporary nature. This type of employment is becoming increasingly important in a settlement economy where there are a number of men who base their existence on the availability of odd jobs, the generosity of friends and relatives and social assistance whenever they can obtain it.

### "Odd Jobbers"

There are thirteen males in the community who may be classed as settlement based and almost wholly reliant on the availability of odd jobs. Of these one man supports a family, two men are separated from their wives and the remainder are single. Their age range varies from twenty-four to fifty-eight. With minor exceptions, they live with friends or relatives.

The hunter-trapper group are active competitors for casual labour and odd jobs during the summer months. This coincides with major construction activities in the settlement.

### Social Assistance to White and Metis - Fort McPherson

Social assistance payments to whites and Metis of Fort McPherson has been low



in line with a small and relatively resourceful group.

### Welfare

<u>1965</u>		<u>1966</u>	
<u>No. of Cases</u>	<u>Total</u>	<u>No. of Cases</u>	<u>Total</u>
<u>Receiving Assistance</u>	<u>Amount</u>	<u>Receiving Assistance</u>	<u>Amount</u>
7	\$1,124.71	5	\$1,251.00

Two cases consisted of a widow and an unmarried mother. The majority of issues were concerned with food and clothing needs. Payments in 1965 extended throughout the year for those persons requiring assistance. The range in size of payments varied from \$26.00 to \$250.00. An unmarried mother received the largest total payment of (\$1,042.21) to support herself and her children.

### Social Assistance - Treaty Indians - Fort McPherson

Social assistance expenditures for 1965 at Fort McPherson totalled \$8,973.37. The number of recipients totalled 55. The range of social assistance payments was large ranging from lows of fifteen dollars to a maximum amount of \$982.77.

<u>Expenditures on Social Assistance</u>	<u>No. of Cases</u>	<u>No. of Cases</u>
<u>Range of Payments</u>	<u>1965</u>	<u>1966 *</u>
Less than \$100	4	24
\$100 to \$200	8	13
\$200 to \$300	5	6
\$300 to \$400	5	6
\$400 to \$500	2	
\$500 to \$600	1	
\$600 to \$700	3	
\$700 to \$800	2	
\$800 to \$900		1
\$900+	1	

The major need expressed by social assistance returns was in respect to food. Minor payments were made in respect to clothing. Fuel wood is not included on the issues since it is provided direct from local stocks.

### Old Age Pensioners

There are thirty-five old age pensioners, thirteen males and twenty-two females, in the Fort McPherson Band. A number of these are still quite active and spend time out of the settlement hunting and trapping. Twelve of the old age male pensioners may be classed as active hunters, trappers, and fishermen with camps in the bush. As heads of extended family groups, they represent an important group in the subsistence economy in respect to experience and leadership.

\* January-July



One individual receives a blind pension.

As an income source, pensions provide an estimated \$28,300 in annual revenue to the community.

#### June and July 1966

There are short duration types of employment which occur during the summer months. Examples of these are the following:

- two men employed for three days cutting proposed line for air strip for D.O.T. survey party
- three men employed by D.P.W. survey party July 20-26
- seven men employed for ten days by Imperial Oil in connection with moving oil camp to Arctic Red River area

These may be classed as "windfall" types of employment which occur from time to time. The possibility of getting employment of this nature is a deterrent to being in the bush.

#### Common Ailments Treated at Fort McPherson (1)

<u>Type of Illness</u>	1964		1965	
	<u>Native</u>	<u>Non-Native</u>	<u>Native</u>	<u>Non-Native</u>
Common cold and influenza	272	81	397	67
Bronchitis and other resp.	33	29	104	19
Gastrointestinal conditions	166	41	158	24
Ear, nose, throat conditions	172	52	159	25
Malnutrition, anaemia, underweight	4	1	13	3
Dental conditions	136	40	180	64
Gynaecological conditions	21	13	35	10
Arthritis and rheumatism	73	7	91	11
Skin conditions	173	44	219	78

A number of other minor ailments were treated. Cases requiring a doctor in attendance are evacuated to Inuvik. The last epidemic experienced in the settlement occurred in 1961 and consisted of a flu epidemic.

#### Community Health Worker

An Indian received training in Alberta in community health work in 1965 and



serves the community in this respect. Home visiting and public health meetings are conducted in co-operation with the nurses.

#### Returns of Inpatients in Fort McPherson Nursing Station

The following are the returns for inpatients at the Fort McPherson Nursing Station:

##### 1963

Number of admissions adult and children	34
Days of care	73
Newborn	13
Days of care	40

##### 1964

Number of admissions adult and children	25
Days of care	70
Newborn	16
Days of care	51

##### 1965

Number of admissions adult and children	55
Total days of stay	125
Number of admissions newborn	18
Total days of stay	63

#### Petroleum Prospecting as a Source of Local Income 1965-66

Petroleum prospecting in the southern half of the region, principally in the Richardson Mountains and on the Peel Plateau, injected substantial amounts of money into the local economy of Fort McPherson through the employment of local labour in 1965 and 1966. Residents of Aklavik and Inuvik also were employed with seismic parties operating in the region.

Total income realized by local casual employees at Fort McPherson amounted to \$15,324.66 in 1965. The number of persons employed was forty-two. There was an extreme variance in individual incomes depending on the amount of time each individual worked.

#### Income Range - Casual Labourers 1965

	<u>No. of Workers</u>
Less than \$100	16
\$100 to 499	17
\$500 to \$999	6
\$1,000 to \$1,999	3
	<u>42</u>

\* One employee employed on a full-time basis earned \$3,904.43.



Examples of Local Earnings from Working with a Seismic Party are also Available

<u>Labourer</u>	<u>1965</u>	<u>No. of Months</u>	<u>Jan. - June 1966</u>	<u>No. of Months</u>
White (Ft. McP.)	\$3,153.50	8.5	\$ 927.50	2.5
White (Ft. McP.)	371.00	1.0		
Indian (Ft. McP.)	3,153.50	8.5	1,113.00	3.0
Indian (Aklavik)	1,669.50	4.5		
Metis (Ft. McP.)	1,113.00	3.0		
Indian (Ft. McP.)	1,484.00	4.0		
Metis (Aklavik)	1,298.50	3.5		
Eskimo (Inuvik)	3,153.50	8.5	1,113.00	3.0
Indian (Ft. McP.)	2,782.50	7.5	927.50	2.5
Eskimo (Aklavik)	927.50	2.5		
Indian (Aklavik)	1,113.00	3.0		
White (Inuvik)	1,484.00	4.0	1,484.00	4.0
Eskimo (Delta)	371.00	1.0		
Eskimo (Delta)	927.50	2.5		
Metis (Aklavik)	927.50	2.5		
White (Aklavik)	556.50	1.5		
Indian (Inuvik)	185.50	.5		
Indian (Inuvik)	556.50	1.5	1,113.00	3.0
Indian (Delta)			1,298.50	3.5
White (Inuvik)			278.25	7.75
White (Inuvik)			742.00	2.0
Eskimo (Inuvik)			556.50	1.5
White (Inuvik)			371.00	1.0
Indian (Ft. McP.)			556.50	1.5

The standard rate of pay per month for casual labourers employed on the seismic parties has been \$271 for a 168 hour month.



Total income for casual labourers for the period January 1 to June 30, 1966, amounted to \$19,784 and a total of thirty-two were employed.

Income Range - Casual Labourers January 1 to June 30, 1966

	<u>No. of Workers</u>
Less than \$100	12
\$100 to \$499	10
\$500 to \$999	4
\$1,000 to \$1,999	3
\$2,000 to \$2,499	3
	<u>32</u>

Further examples of local employment were supplied by a large petroleum company operating from Inuvik and camps in the region during 1966.

Local Employment

<u>Numbers Employed</u>			<u>Locality</u>	<u>Duration of Employment</u>	<u>Rate of Pay</u>
<u>Indian</u>	<u>Eskimo</u>	<u>Other</u>			
	1		Inuvik	Feb. 21/66 - May 27/66	\$371.00 per month
1			Inuvik	Jan. 9/66 - Mar. 31/66	371.00 per month
	1		Inuvik	Apr. 3/66 - May 2/66	" " "
	1		Inuvik	Jan. 7/66 - Mar. 31/66	" " "
1			Aklavik	Jan. 15/66 - Feb. 8/66	" " "
1			Inuvik	Apr. 4/66 - May 27/66	" " "
1			Inuvik	Feb. 14/66 - June 30/66	" " "
1			Inuvik	Feb. 1/66 - May 14/66	" " "
1			Inuvik	Jan. 9/66 - May 30/66	" " "
1			Inuvik	Jan. 22/66 - Apr. 6/66	" " "
1			Inuvik	Jan. 9/66 - April 25/66	" " "
1			Fort McPherson	Apr. 1/65 - To present	" " "

The amount of employment available varies according to program of the individual company. For example, only minor amounts of employment were available to Fort McPherson people at an oil drilling camp at the Caribou River in 1965.

<u>No. Employed</u>	<u>Settlement of Origin</u>	<u>Rate</u>	<u>Total Hours</u>
2	Fort McPherson	\$1.50 hr.	160 hrs. each Nov. 1965
1	" "	\$250 mo.	Sept. 1965 Dec.

The income realized from employment with petroleum prospecting outfits cannot be regarded as a stable resource in the region, although continued interest and activity in the region has been forecast by a number of firms. It seems likely that activity will increasingly be directed towards exploration work in the northern part of the region. This should continue to provide employment opportunities for those who are willing to work away from the home settlements with seismic parties and oil rigs.



A decrease in activities has taken place at Fort McPherson and this will affect the local economy. A large oil base camp was moved from Fort McPherson to Arctic Red River in the summer of 1966.

#### Economic Survey - Fort McPherson Indian Band 1964

In 1964, an economic survey was conducted at Fort McPherson to assess the income of the Fort McPherson Indians. The survey was carried out by Indian Affairs representatives (Indian agents) in the Lower Mackenzie region. The statistics are presented here to give a general idea of economic conditions in 1964.

#### Income for 83 Band Members Living on the Settlement

Handicrafts	22	\$9,000.00
Forestry	10	11,000.00
Fishing	20	5,000.00
Trapping	64	65,000.00
Guiding	4	4,000.00
Skilled trades in settlement	5	16,000.00
Unskilled casual labour in settlement	30	35,000.00

Income for 21 Band Members not Living on Settlement		\$48,000.00
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#### Other Income Sources of Settlement Residents

Treaty payments	485 recipients	\$ 2,500.00
Family Allowance	59 mothers (188 children)	1,300.00
Old Age Pensions	22 recipients	19,800.00
Other Pensions	1 recipient	780.00
Welfare Assistance	78 households	11,868.00

#### Major Income Sources 1965 - Fort McPherson

The following is an attempt to delineate sources of income.

Trapping	\$32,744.58
Fishing	1,105.00
Permanent Employment - government agencies	23,840.00
Casual Employment - government agencies	4,000.00
Employment with Crown Corporation	22,547.00
Employment with private agencies	7,400.00
Logging - all types	8,598.73
Employment with oil companies	23,547.00
Winter works programs	3,000.00
Hostel	20,930.00
Guiding and Handicrafts	4,740.00
*Treaty Payments	2,500.00
*Family Allowances	16,340.00
Social Assistance	8,973.00
Old age and other pensions	28,300.00
Total	\$208,565.31

In 1958 the Indian agent gave an estimated total revenue of \$318,000 for the Fort McPherson Indians or a total of \$272.00 per capita annual income (Henoch, 1958).

In 1963, the estimated per capita income for Indians in the N.W.T. was approximately \$510 per capita (Northwest Territories Today, 1965).



With the exception of employment with oil companies the income figures represent incomes obtained within the area normally ascribed to the settlement. Major income declines in 1966 occurred with respect to employment with oil companies, crown corporations and logging. These declines were partially offset by construction activities.

Some arguments may be raised in regard to the total Family Allowances since a number of the children are enrolled in hostels, but the returns from Family Allowances would normally be expended on behalf of the children and may be regarded as a source of income.

With the exception of the categories marked all income forms are subject to fluctuations from year to year.

### Stores

Three stores are in operation in Fort McPherson. The Hudson's Bay Company store stocks the greatest range of general merchandise and also provides space for postal facilities. One store owner, who began business with a small store in 1941, now operates a large establishment incorporating a cafe, pool hall and theatre in addition to a general merchandising department. The other storekeeper began business in 1961. His range of merchandise is somewhat limited, but he is planning on expanding his commodity range to include resource harvesting equipment in 1967.

All three stores handle local furs. The Hudson's Bay Company is reported to handle the bulk of the furs with estimates ranging between 60 and 70 per cent of local production.

The stores are frame structures grouped in the central portion of the settlement. Only minor price variations exist and major competition takes the form of varying hours in which the stores are open.

The local residents have manifested some interest in the establishment of a co-operative store in the settlement. However, the fact that the owner operators of two stores engage in a multitude of other activities would seem to indicate there are now too many stores in the community.

### Local Purchases of Imported Foodstuffs and other items

<u>Purchases of Imported Meats</u>	<u>Average Price</u>	<u>Quantities</u>
Frozen meats	90 cents by barge average price per lb.	9,100 lbs.
	1.20 cents by air	3,000 lbs.
Reindeer Meat	50 cents a lb.	3,600 lbs.
Canned meats	65 cents a lb. average price	9,814 lbs.
Canned fish	45 cents a can average price	2,000 cans
Eggs	89 cents a doz. by barge	4,000 doz.
	1.39 by air	2,190 doz.



<u>Imported Fats</u>	<u>Average Price</u>	<u>Quantities</u>
Butter	96 cents a lb.	6,840 tins
Margarine	39 cents a lb.	190 lbs.
Lard	32½ cents a lb.	9,212 lbs.

#### Other Staples

Flour	13 cents a lb.	28,155 lbs.
Baking powder	59 cents a lb.	950 lbs.
Powdered milk	75 cents a lb.	9,151 lbs.
Evaporated	25 cents a can	11,268 lbs.
Condensed - sweetened	47½ cents a can	500 cans
Sugar	18 cents a lb.	105,071 lb.

In addition a large variety of other canned foods fresh food etc. are purchased.

#### Canned Vegetables, Fruit Juices, Fruits

The major local distributor of canned fruit juices, fruits and vegetables realized sales of approximately 19,000 tins in 1965 with canned fruit accounting for 43 per cent of sales.

Another distributor reported selling a total of 180 cases of canned juices, vegetables and fruits.

Sales of dried fruit amounted to approximately 3,675 pounds in 1965.

#### Sale of Cereals

Sales of cereals in 1965 amounted to approximately 8,296 pkgs. Sales of rice amounted to 4,910 pounds, while macaroni amounted to 3,100 pounds.

#### Fresh Fruits and Vegetables

The major retailer in the community sold the following quantities of fresh fruit in 1965 received by barge and air.

##### By Barge

30 cases apples  
10 cases pears  
400 pounds of oranges  
5,700 pounds of potatoes  
1,200 pounds of onions

##### By Air

20 cases of oranges  
30-40 cases other fresh fruits

Air shipments occur mainly when stocks received on the barges have been exhausted.

The other two retailers handled approximately 250 cases of fresh fruit and vegetables.



Other Local Purchases of a "Luxury" type 1965

	<u>Average Price</u>	<u>Estimated Sales</u>
Cigarettes	50 cents a pkg.	42,917 pkgs. \$21,458.00
Tin, Tobaccos, Plugs, Snuff		3,200.00
Chocolate bars, candies		5,531.00
Soft drinks	17,470 cans	3,494.00
		<u>\$33,683.00</u>

Mail Orders

A large mail order business has also developed in the community. This is restricted mainly to clothing and luxury items.

Purchases of Clothing - Fort McPherson

A survey of clothing expenditures at Fort McPherson in 1965 indicates that basic clothing items are purchased. The major items of clothing produced at the local level are cloth parkas for both sexes and mocassins of caribou or moosehide.

The total estimated expenditure on local clothing purchases in 1965 amounted to \$9,467.00 not including imported footwear.

Materials Purchased Locally for the Manufacture of Clothing (1)

<u>Commodity</u>	<u>Average Price</u>	<u>Quantity</u>
Duffel	\$8.95/yd.	130 yds.
Grenfell	3.98/yd.	88 yds.
Stroud	9.98/yd.	278 yds.
Cotton Print	1.00/yd.	1,533 yds.
Wolverine	49.50/skins	22 skins
White rabbit	2.50/skin	152 skins
Moosehides	35.00/skin	29 skins

The demand for imported footwear is large. Rubbers are worn over moccasins. In addition a large number of rubber boots, running shoes, and shoes are sold. Expenditure on footwear amounted to an estimated \$2,728.22.

Land Use Problems

There are major problems in the community of Fort McPherson in respect to land use and road developments. Lack of space has resulted in the construction of Indian houses on low swampy ground in the south-eastern settlement area. While difficulties of terrain can partially be overcome by placing the housing on skids, ground conditions are unsuitable with respect to the activities of children playing in the immediate vicinity of houses or the keeping of dogs in the housing areas. As yet no attempt has been made to provide fill in low lying areas.

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(1) Some of these materials particularly moosehide were used in the manufacture of local crafts.



## FURS TRADED AT FORT MCPHERSON

Species	1961 - 62		1962 - 63		1963- 64		1964 -65	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Bear, Other	-	-	2	30.00	-	-	1	15.00
Beaver	130	1,825.00	108	1,685.50	132	1,669.50	163	2,367.50
Fox, Cross	-	-	4	17.00	-	-	-	-
Fox, Red	2	7.00	1	6.00	3	15.00	1	5.00
Fox, Silver	-	-	1	5.00	-	-	-	-
Fox, White	-	-	-	-	-	-	-	-
Lynx	24	205.00	41	485.00	46	577.00	28	323.00
Marten	224	1,510.00	348	3,115.00	984	12,810.75	292	3,409.00
Mink	293	6,910.00	332	8,906.00	330	12,254.50	159	4,015.50
Muskrat	36,518	23,740.00	31,720	37,696.00	15,087	18,280.45	19,352	22,728.11
Otter	1	15.00	-	-	-	-	-	-
Squirrel	369	104.00	306	96.00	116	47.75	108	45.55
Weasel	89	61.00	274	196.00	374	257.75	195	114.10
Wolf	-	-	-	-	-	-	-	-
Wolverine	-	-	-	-	-	-	-	-
		\$34,377.00		\$52,237.50		\$45,912.50		\$33,021.76



The problems of road development in an area of deltaic silts are partially overcome by exploiting a shale pit at the southern end of the settlement for road fill. These quickly crumble under heavy use and the roads are either dusty in dry weather or extremely muddy in wet weather. The major gravel deposits are outwash deposits at the mouth of Vittrekwa River and consist of large cobbles in flat beds extending for two hundred yards at the mouth of the river.

In the central part of the settlement wooden sidewalk construction has partially alleviated the problem.

A number of buildings, including government warehousing in the eastern part of the settlement, are located below the high water level resulting from a back up of water into low areas east of the settlement during flood periods.

### Indian Housing

Two distinct enclaves of Indian housing exist in Fort McPherson. One group of houses is clustered in a jumbled fashion between the Hudson's Bay Company store on the north and the school on the south. To the east it is bordered by the main settlement road running north-south and to the west the boundary is a scarp overlooking the river flats. The houses are situated on land owned by the Anglican and Roman Catholic missions.

The division of Indian housing has no social basis but derives from a scarcity of land for construction purposes.

The other major location of Indian housing is along a road south-east of the hostel. An Indian Affairs Branch housing program was started in Fort McPherson in 1961. By the spring of 1966, 28 Indian Affairs Branch houses had been built to replace older log and squared timber dwellings. The cost of a log house with two bedrooms is approximately \$5,500.

Under the Indian Affairs program four houses were allocated for settlement housing in 1965 and three units were carried over from 1964. Four houses were completed and occupied by Indian families. Three units were carried forward for completion in 1966. Under the program six new units were allocated in 1966.

The majority of the older housing still in use in Fort McPherson consists of a single story, one room dwelling with an upstairs loft for storage and extra sleeping quarters. The exterior is mudded in the autumn to reduce the cold. Some houses were noted which had been partially draped in polyethelene. (1)

The older houses have hand hewn plank flooring.

Log or frame storage sheds are used by a number of families for storing equipment. A number of dilapidated privies are also to be seen in the community.

Cast iron wood cook stoves and oil drum heaters are used for cooking and heating. Gas lamps provide light in the houses with the exception of those employed with the crown corporation.

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(1) One older Indian is reported to have made a dog team trip to Dawson City to secure rubberized roofing materials for his house.







Number Adults	Number Children	Ethnic St.	Income Source	Ownership	House Type	Size	Conditions	Light Source	Heat and Cooking Source	Water Source
2	2	1	C.	P	L	14' x 16'	F	G.L.	W.C.	C.
2	7	1	T.	P	L	18' x 18'	P	G.L.	W.C.	C.
3		1	C.	P	F	20' x 30'	G	E	W.C.	C.
2	4	1	P.	G	L	26' x 24'	G	G.L.	W.C.	C.
			T.						W.H.	
3	1	1	T.	G	L	20' x 24'	G	G.L.	W.C.	C.
4	8	1	T.	P	L	28' x 24'	F	G.L.	W.C.	C.
			C.							
2	4	1	P	P	F	20' x 24'	G	E.L.	W.C.	D.
4	2	1	T	P	L	20' x 22'	F	G.L.	W.C.	C.
3	4	1	T	P	L	20' x 20'	P	G.L.	W.H.	C.
									W.C.	
1	4	1	S.A.	G	L	20' x 24'	G	G.L.	W.C.	C.
2		M	T.	P	L	20' x 30'	G	G.L.	W.C.	R.
1	2	M	T.	P	L	20' x 25'	F	E	W.C.	C.
2	3	1	P	G	L	20' x 24'	G	G.L.	W.C.	C.
2	5	1	T	G	L	20' x 24'	F	G.L.	W.C.	C.
4	5	1	P	G	L	20' x 24'	G	E	W.C.	D.
2	4	M	P	P	F	20' x 26'	G	G.L.	W.C.	D.

Ethnic Status: I - Indian, M - Metis, Income Source: T - Trapping, P - Permanent Employment

Water Source: C - Collection Bomb, D - Delivered, R - River, C - Casual Employment

Ownership: G - Government, P - Private

House Type: F - Frame, L - Log

Conditions: F - Fair, P - Poor, Heating W - wood, O - oil, Lighting E - Electricity, GL - Gas Lamp



Forty-five gallon barrels are used for the disposal of garbage.

### Metis and Non-Treaty Indians (1)

The Metis and non-treaty Indians occupy a settlement fringe area in the eastern portion of the settlement. Little differentiation can be observed in standards of living or general housing conditions. In the majority of cases, the Metis are indistinguishable from treaty (and non-treaty) Indians, in respect to social and economic conditions.

### Housing Conditions

A sampling of native occupied housing is included in this report. The sampling covers housing occupied by Indian and Metis and includes both privately owned and government housing.

### Family Income of Occupants

#### ETHNIC ORIGIN OF FAMILY

	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
\$1,000 and less	0	0	29	87	0	0
1,001 - 2,000	0	0	26	118	1	7
2,001 - 3,000	1	5	9	35	2	8
3,001 - 4,000	0	0	5	22	1	8
4,001 - 5,000	0	0	1	10	1	5
5,001 - and over	0	0	1	10	15	57
TOTALS	1	5	71	282	20	85

### Employment of Family Heads

#### ETHNIC ORIGIN OF FAMILY

	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
Federal Gov't.	1	1	13	60	15	58
Territorial Gov't.	0	0	0	0	0	0
Municipal Gov't.	0	0	0	0	0	0
Private Enterprise	0	0	7	32	1	15
Self-employed	0	0	0	0	2	14
Casual employment	0	0	34	146	2	8
Pensions	0	0	17	44	0	0
TOTALS	1	1	71	282	20	85

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(1) Non-treaty Indians are those who gave up their treaty rights in the 1950's in order to be able to purchase liquor.



### Power Saws and Local Fuel Sources

Thirty-two power saws for logging and cutting firewood are owned by Metis and Indians in Fort McPherson. Maintenance of this type of equipment is a major problem. A large number of the power saws broken or otherwise in poor running conditions were seen during the survey.

At Arctic Red River, the power plant operator attempted to supply power saws to local people on a rental basis but reported that breakages were too frequent and forced him to cease renting his equipment.

A house to house surveys in 1966 in Fort McPherson revealed only six oil stoves being used by the local Indian and Metis population for cooking and heating. In some houses, the major source of cooking and heating were inefficient upright wood burning oil drum stoves with no means of controlling heat or fuel consumption.

Fuel oil is available from N.C.P.C. and purchasers collect the fuel oil in drums they provide for the purpose.

Various estimates were given as to the consumption of firewood for heating and cooking purposes. Cordwood is locally valued at \$20.00 a cord. Local estimates in respect to fuel consumption for houses 20 by 24 feet in size ranged from one to two cords for the coldest months during the winter. During the warmest months, some families prefer to cook outside.

While oil is cheaper than cordwood at Fort McPherson, the reasons for its limited use are obvious. Low incomes do not result in substantial amounts of money being available for the purchase of imported fuel oil despite lower cost and a longer heating use.

The extensive use of firewood in Fort McPherson and Arctic Red River provides a striking contrast to the extensive use of fuel oil in Inuvik, Aklavik and Reindeer Station, all of which are in good resource areas in respect to fuel wood.

### Bath House and Laundry Facilities

There is a need for a bath house and laundry unit in this community where problems exist in maintaining a supply of water in the homes. Some residents have advocated the establishment of coin-operated laundry facilities.

A problem of this type can be partially handled at the local level through community organization. Local materials are available for the construction of a building and the utilidor system can be used in providing a water supply. The cost of services could be offset through the use of coin-operated facilities. However, a less expensive system would be preferable in a community where permanent employment is not readily available and where a large part of the population is involved in low revenue producing subsistence activities.

There is an obvious contrast between settlement housing conditions and bush camps. Cleanliness is more easily achieved in the bush where the disposal of wastes is more easily accomplished, water supplies are abundant and there is no problem with dust raised by vehicles using unsatisfactory roads.



## Local Organizations

The major organizations in the community are the Indian band council and the local advisory council. The chief of the Indian band council is technically speaking a non-resident of the settlement and lives at Trail River some distance up the Peel River. The chief plays a dominant leadership role in respect to Yukon hunting and trapping rights. The councillors are settlement based persons. The band council is functional at Treaty time in bringing up matters of local importance.

The local advisory council is involved in community functions and has some autonomy in deciding on the establishment of local ordinances and decisions in respect to the types of winter works programs to be carried out in the community. Until 1966, the members of the advisory council were representatives of the vested interests in the community, the government, store owners and the church. Two Indians were elected to the advisory council in 1966.

Other organizations are primarily directed towards recreational activities in the community. All ethnic groups white, Indian and Metis participate in organized forms of recreation.

The Woman's Institute and the Auxiliary are closely related to other church activities. The cubs and boy scout associations are under the direction of a non-resident white hostel worker.

A scout patrol cabin has been built along the Peel River close to the settlement.

In 1966, the non-permanent white population was divided into various factions. This is not peculiar to Fort McPherson but seems to be endemic in small frontier communities.

## Feasts

Feasts are held by the Indians at Fort McPherson in connection with various holidays, Christmas, Easter. In 1966, an Indian father held a feast for a son returning after a prolonged period in southern Canada on a vocational training course. The fare consists of game meat usually caribou, bannock and tea. Speeches are made by older men with some prestige in the community and visitors from other communities.

In recent years participation of non-Indians has increased at feasts and contributions in the form of food are solicited by the sponsors.

## Dances

While various forms of semi-traditional dances are known among the middle-aged and older groups, reference is continually made to "Slavey" dances (drum dances known among the Hare and Slave Indians). This was also noticeable at Aklavik where "Slavey" dances are held in esteem by local older Indians. The younger age groups show little interest in traditional forms of dancing.

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Part of non-permanent whites form a distinctive recreation group for the purpose of showing movies and rotate meetings about their residences. At Arctic Red River, local residents gave demonstrations of Slavey dances in 1966. The drum consisted simply of a wooden hoop covered with caribou and faced with three strands of sinew which were used with effect to produce vibration.



## The Royal Commission

A Royal Commission to investigate the unfulfilled provisions of treaties eight and eleven visited Fort McPherson, Aklavik and Arctic Red River in 1959 and reported that the Indians were not interested in acquiring land as reserves and showed very little interest in acquiring mineral rights. (1) They were suspicious of the Commission bringing up old treaties and were fearful that their fishing, hunting and trapping rights might be changed. There is some evidence that the Indians who were in their maturity at the time the treaty was signed at Fort McPherson did not properly understand the provisions contained in the treaty. Some of the older Indians in the region maintain that they were promised a share in the returns resulting from the discovery of minerals including oil on the lands they ceded to the Crown.

## Potentials for Expanding the Economic Base

The potentials for expanding the economic base of Fort McPherson and its general resource area are dealt with throughout the report. The development of fur garment and handicraft industries appears to hold some economic potential. The tourism potential remains unexploited and cannot be organized solely at the local level.

Future increases in population and increasing in settlement orientation will demand the application of new methods of resource harvesting. It appears that greater out migration from Fort McPherson and the lower Mackenzie region should be encouraged through education for resettlement in more economically viable communities.

## Relocation of Population

Relocation in terms of existing population has been small. There are a number of Fort McPherson people who are either resettled in Inuvik on a permanent basis or who are working there temporarily. Two women are in Edmonton and two children have been adopted by persons in the United States. Since 1964, two families have moved to Aklavik where they have relatives.

A similar condition applies to the Metis population. The number who have left the community to settle elsewhere is small. Despite the accessibility brought about by scheduled air services, in many respects the community continues to be isolated. Few real pressures are felt by the people for resettlement.

## Indians of Fort McPherson Band not now in the Lower Mackenzie Region

<u>Sex</u>	<u>Age</u>	<u>Whereabouts</u>
Single Male	18	in U.S.A. with missionary
Female	7	in U.S.A.
Female	22	in Edmonton (two children there also)
Female	18	in Edmonton (child there also)
Female	19	in Edmonton
Female	24	in Edmonton
Male	19	in Ottawa (employed D.O.T.)

(1) Despite an apparent lack of interest in reserves, Indians in the settlements have manifested an interest in securing title to individual house lots. Also, oil and mineral prospecting will affect the apparent lack of interest in reserves



Fort McPherson Indians Living Elsewhere in the Region

There are seven family units of Fort McPherson Indians who have resettled in Aklavik in recent years. One unmarried mother is included in this group. Fewer of the Fort McPherson Indians have settled in Inuvik. There are three family units in Inuvik of which two are headed by unmarried mothers. There is also an unmarried female of the middle age group settled in Inuvik.





LEGEND

- 1. School
- 2. H.B.C.
- 3. R.C.M.P.
- 4. Mission
- 5. Dock Area
- 6. Summer Tent Area
- 7. Arctic Red River
- 8. Road
- 9. Building
- 10. House
- 11. Church
- 12. Store
- 13. Office
- 14. Warehouse
- 15. Workshop
- 16. Garage
- 17. Barn
- 18. Stable
- 19. Shed
- 20. Fence
- 21. Gate
- 22. Well
- 23. Pond
- 24. Lake
- 25. River
- 26. Stream
- 27. Bay
- 28. Inlet
- 29. Strait
- 30. Sound
- 31. Fjord
- 32. Glacier
- 33. Iceberg
- 34. Iceberg
- 35. Iceberg
- 36. Iceberg
- 37. Iceberg
- 38. Iceberg
- 39. Iceberg
- 40. Iceberg

Scale 1 = 400

North Arrow

Arctic Red River

Summer Tent Area

Dock Area

Mission

H.B.C.

R.C.M.P.

School

ARCTIC RED RIVER

Summer Tent Area

Dock Area

Mission

H.B.C.

R.C.M.P.

School

ARCTIC RED RIVER

Summer Tent Area

Dock Area

Mission

H.B.C.

R.C.M.P.

School

ARCTIC RED RIVER

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Mission

H.B.C.

R.C.M.P.

School

ARCTIC RED RIVER

Summer Tent Area

Dock Area

Mission

H.B.C.

R.C.M.P.

School

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ARCTIC RED RIVER



## ARCTIC RED RIVER

The significance of Arctic Red River (67° 30'N, 133° 45'W) as a way station and post in the fur trade, and also as a mission center, has been mentioned in the historical chapter. It now represents a declining community. The resident population consists of hunters and trappers, who continue to exploit the local resource base. Many of the people have moved to other more vigorous communities within the region, while others have left the region entirely. The almost total absence of wage employment, even on a casual basis, appears to have been one of the major factors in the exodus over the past few years.

### Physical Conditions

The settlement is located at the juncture of the Arctic Red and the Mackenzie Rivers. Terrain conditions in the settlement range from a small swampy benchland fronting the river, to sloping ground ending in a high bluff where the Roman Catholic Mission is located. Settlement housing extends south of the Mission on sloping, well-drained ground. The Hudson's Bay Company and the R.C.M.P. occupy extensive areas in the eastern part of the settlement.

Soils consist of clay-loams of glacio-lacustrian origin with a high organic content.

Surface conditions are good within the settlement area and the area is well-grassed. Trees are absent, having been cut long ago as firewood, in the main settlement area.

The forest vegetation within the immediate vicinity, consists of second growth conifers, interspersed with poplar willow and alder growth. Commercial stands of timber exist upriver along the Mackenzie and Arctic Red Rivers.

River depths, although shallow in the immediate vicinity of the docking area, are adequate for standard water transportation used by the Northern Transportation Company. A small dock is available for loading and unloading purposes. The cobble and sand beach provides an adequate hauling-up location for small boats and canoes. The south shore of the Arctic Red River mouth offers some shelter due to bluffs north of the river from north-northwest winds in August. Immediately east of the settlement shale bluffs rise to a height of 300 feet.

### Road and In-Settlement Transportation

The road system in the settlement consists of a single-track, dirt road, connecting the beach area to the Hudson's Bay Company the school and the R.C.M.P. The road declines sharply in the approach to the docking area and this becomes soft and slippery during rainy periods. No roads exist in the central area occupied by local housing. The established road system is less than a mile in length. A number of small trails exist for the purpose of cutting wood.



Vehicles consist of two bulldozers, one owned by the Hudson's Bay Company and one by the Oblate Mission, and a snow cruiser owned by a local resident.

### Water Supply

The local water supply is extremely rudimentary. A large collection tank is filled by a hose and pump system from a shallow lake between the R.C.M.P. and the school. In the winter river-ice is used to provide drinking water.

### Power Installation

The power installation consists of a 20 K.W. capacity generator maintained and operated by the Department of Indian Affairs and Northern Development. Electricity is provided to the major agencies.

### Education

The school complex located on a bluff behind the Hudson's Bay Company, in the southern area of the settlement, consists of a large classroom, an office, a storage room and an attached teacher's residence. In 1963-64, there were ten children in attendance in grades ranging from grade one to grade six. In 1965, the school was closed and the children were transferred to Inuvik. An attempt was made to re-open the school in 1966, but only four pupils were available and the school remained closed.

Practically all adult members of the Arctic Red River group are literate, due to attendance at mission residential schools. The highest grade level attained by Indian adults was stated to be grade six. One young adult reported in 1966 that he had attended vocational school in Yellowknife.

### The Hudson's Bay Company Store

This store carries a limited range of items consisting of canned goods, dry goods, hunting and trapping equipment. Higher prices prevail than at Inuvik and local residents make trips to Inuvik to sell furs and purchase goods.

A number of Indian families, who formerly traded into Arctic Red River, are now resident at Aklavik or trade into Inuvik by preference.

### Church

The population is predominantly Roman Catholic. The Mission serves as a community center for the local population. Organized recreation consists of movies and semi-organized play activities, for the small group of children resident in the settlement. The church is strategically located on a bluff in the central part of the settlement. The priest serves both the Arctic Red and Fort McPherson settlements.

### R.C.M.P.

The R.C.M.P. establishment consists of a constable and a special



constable. Radio contact is maintained with Inuvik. Nineteen sled dogs are maintained for patrol purposes in winter. A freight canoe and dory are used for summer patrols.

### Housing Conditions

The housing is varied, ranging from shacks to substantial, but old log and frame dwellings. The major source of heating is firewood.

A few families move into tents during the summer, either at fish-camp locations along the Mackenzie, or within the settlement area.

### Garbage and Sewage Disposal

There is no organized garbage or sewage disposal system. Refuse and wastes are disposed of on the ground a short distance from the settlement buildings. Despite the lack of organized facilities the community is clean.

### Health

The settlement is periodically visited by a nurse from Fort McPherson and medical staff from Inuvik. Minor ailments are treated at the local level by the R.C.M.P. Emergency cases are transported to Inuvik by aircraft, after being reported by radio or telephone communication.

### Access to other Communities

During the open water period, transportation between Arctic Red River and other settlements is by barge and canoe. Inuvik is reached by following the middle Mackenzie and the East Channel. Occasionally high winds and shallow water present some hazards in the vicinity of Point Separation.

The middle Mackenzie is also followed to reach the Peel River mouth and this is followed to Fort McPherson. Both settlements can be easily reached in a day's boat travel.

Travel to Aklavik has normally been limited to trips for the purpose of log deliveries to the Aklavik saw-mill.

In winter, the water distance to Fort McPherson is considerably shortened, through the use of an overland winter trail of thirty-eight miles between the two communities. By skidoo, the time involved amounts to four hours one way. By dog team the trip can be made in less than a day with dogs in good condition.

### Population

The local population is predominantly Indian. In previous years, there was more contact with Hare and Slavey groups further upriver, and intermarriages occurred between the groups. This no longer holds true, and now there is little direct contact between groups of Loucheux, Hare and Slavey Indians. This results chiefly from a decline in resource utilization over more extensive areas. There is also evidence to suggest a decline in Metis populations, through movement to other settlements,



principally Inuvik or Fort McPherson.

Arctic Red River - Population (Indian and Metis)

The population statistics given below include the Indian and Metis population of Arctic Red during the summer of 1966. It does not include Indians or Metis who are resident in the area north of Point Separation. These are more properly included in population statistics for Inuvik or Aklavik.

Fifteen family units are included in the census.

<u>1966</u>	<u>M</u>	<u>F</u>
70 plus	2	2
65-79	1	1
60-64		1
55-59	2	
50-54	1	1
45-49	1	1
40-44	2	
35-39	3	3
30-34	1	1
25-29	2	2
20-24	1	4
15-19	4	3
10-14	5	2
5-9	4	3
1-4		2
0-1	6	2
	<hr/>	<hr/>
	35	28

Since 1960, the population of Arctic Red River has declined from out-migration to Inuvik and other centers. A number of members of the Arctic Red River Band, formerly trading into Arctic Red River, now trade at Inuvik. Others live in Inuvik on a permanent basis. Also, people who were formerly classed as Arctic Red River people, now live in Aklavik on a permanent basis.

A comparison of ages in Arctic Red River with Canadian averages is shown below:

<u>Age Group</u>	<u>Arctic Red River 1966</u>		<u>Canadian</u>	<u>Arctic District</u>
	<u>Number</u>	<u>%</u>	<u>%</u>	<u>%</u>
0 - 14	24	39.6	34	47
15 - 64	33	52.4	58.4	51.2
65 - and over	6	8.9	7.6	1.8

It will be noted that this is an "old" community by northern averages.

The older and less educated adults are remaining because they consider the area as their home. With the younger adults leaving and the older ones dying, the prospects for the existence of the settlement of Arctic Red River for many more years is not very hopeful.



Arctic Red Births 1964-66

<u>S</u>	<u>W</u>	<u>I</u>	<u>M</u>	<u>Date</u>	<u>Location</u>
F		-		Nov./64	I.G.H.
M		+		March/64	I.G.H.
M	-			May/64	I.G.H.
F			-	February/64	Fort McPherson
F		-		Dec./64	A.R.
M		-		Oct./64	A.R.
M		-		June/65	I.G.H.
M		-		Nov./65	I.G.H.
F		-		April/65	I.G.H.
M		-		Oct./65	I.G.H.
F			-	Jan./65	I.G.H.
M		-		July/66	I.G.H.
M		-		June/66	I.G.H.
F		-		June/66	I.G.H. ★
F			-	"	Fort McPherson
M		-		Oct./66	Fort McPherson
F			-	Oct./66	A.R.
M		-		Nov./66	I.G.H.
M		-		"	I.G.H.

Arctic Red Deaths 1964-661964

<u>S</u>	<u>W</u>	<u>I</u>	<u>M</u>	<u>Age</u>	<u>Cause</u>
F		-		47 yrs.	Lower Respiratory Infection

1966

M		-		9 yrs. ten mos.	Small Bowel Obstruction
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I.G.H. Inuvik General Hospital

★ - Father Unknown



In 1966, a housing survey was completed in conjunction with the general survey.

### Settlement Housing - Arctic Red River ★

No. of Adults	No. of Children	Ethnic St.	House Owner	Type of House	Condition	Water	Lighting	Sewage
3	2	1	P.	Log 18' x 22'	P.	W.H. W.C.	G.L.	on ground
2		1	P.	Log 13' x 13'	P.	W.C.	G.L.	on ground
3	2	1	P.	Log 20' x 15'	F.	W.H. W.C.	G.L.	on ground
3		W.	P.	F. 24' x 16'	F.	W.H. W.C.	G.L.	on ground
2	3	1	P.	L. 21' x 28'	P.	W.H. W.C.	G.L.	on ground
4	3	1	G.	L. 18' x 20'	P.	W.C.	G.L.	" "
2	3	M.	G.	F. 2 bedroom	G.	O.	E.	" "
2	3	1	P.	F. 16' x 18'	F.	W.H. W.C.	G.L.	" "
2	4	1	G.	F. 14' x 20'	F.	W.H. W.C.	G.L.	" "
2		1	G.	L. 14' x 20'	G.	W.C.	G.L.	" "
4	2	1	P.	L. 20' x 30'	G.	W.C.	G.L.	" "
3	1	1	G.	F. 16' x 14'	F.	W.C.	G.L.	" "
5	3	1	P.	L. 20' x 18'	P.	W.H. W.C.	G.L.	" "
2	2	W.	P.	F. 20' x 16'	F.	O	E.	" "
2		1	P.	L. 17' x 24'	F.	W.H. W.C.	G.L.	" "
1			G.	F. 30' x 20'	F.	W.C.	G.L.	" "

Not including R.C.M.P., H.B. Co., Mission

Symbols:

Ethnic Status I - Indian M - Metis W - White E - Eskimo  
 House Ownership - G - Government Ownership P - Private Ownership  
 House Condition G - Good F - Fair P - Poor  
 Water supply W - Water Point L - Lake  
 Lighting E - Electricity G - Gas Lamp  
 House Type L - Log - F - Frame

(1) does not include residence of the Roman Catholic Priest, R.C.M.P. constable or Hudson's Bay Company manager's residence.



Members of the Arctic Red River Band not living in the Settlement of Arctic Red River or its immediate area

There are now thirteen family units living in Inuvik. Two family units live at Fort McPherson. One family unit lives at Aklavik. Another family unit centers at Big Rock on the East Channel of the Mackenzie. Another family lives at Fort Good Hope. Twenty-two single male adults (20-40 age group) live in Inuvik. Two single women and a single male live in Edmonton. One aged female is resident in the Old Folks' Home at Aklavik. Another lives in Fort Smith, N.W.T.

Furs Traded at Arctic Red River

The low volume of furs traded at Arctic Red River in 1964-65, reflects a shift of fur trading activities elsewhere, principally to Inuvik.

Non-Local Foods

Expenditures on non-local foods is low. This is due to low income levels. Imported food stocks are also limited in variety and tend to be basic items.

<u>Staple Foods</u>	<u>Annual Estimated Sales</u>	<u>Average Price</u>
Flour	6,325 lb.	18 cents a lb.
Sugar	1,700 lb.	25 cents a lb.
Baking Powder	150 lb.	50 " " "
Tea	400 lb.	79 " " "
Coffee	200 lb.	20 " " "
Canned Meats	2,000 cans	75 " per tin
Lard	3,000 lb.	80 " " "
Butter	1,000 lb.	80 " " "
Evaporated milk	9,500 cans	40 " for two cans
Canned Fish	350 cans	25 " a can
Dried Fruit	200 lb.	20 " " "
Jams	192 lb.	69 " " "

Other Commodities

Cigarettes	7,100 pkgs.	48 " a pkg.
Tobacco	400 pkgs.	40 " " pkg.
Snuff and Chewing Tobacco	1,500 pkgs.	40 " " pkg.
Soft Drinks	5,500 cans	20 " " can
Chocolate Bars	6,700 bars	10 " each
Assorted Candies		\$120.00 total expenditure

Expenditures on clothing and resource-harvesting equipment are also low.



FURS TRADED AT ARCTIC RED RIVER

Species	<u>1961 - 62</u>		<u>1962 - 63</u>		<u>1963 - 64</u>		<u>1964 - 65</u>	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Bear	-	-	-	-	-	-	3	42.50
other	82	1,035.00	69	915.00	127	1,957.00	75	933.00
Beaver	-	-	2	4.25	3	9.00	-	-
Fox, Cross	2	4.00	-	-	7	22.00	-	-
Fox, Red	-	-	-	-	1	3.00	-	-
Fox, Silver	-	-	-	-	-	-	-	-
Fox, White	-	-	-	-	-	-	-	-
Lynx	3	16.00	27	189.00	38	350.00	11	127.00
Marten	152	725.00	447	3,722.50	632	7,089.00	74	664.00
Mink	62	1,045.00	55	860.75	79	2,409.00	14	328.50
Muskrat	2,792	1,732.00	2,150	1,934.05	2,084	2,227.20	789	731.65
Otter	-	-	-	-	-	-	-	-
Squirrel	17	4.75	11	1.50	7	3.05	1	.55
Weasel	29	18.75	41	24.45	73	38.40	17	9.20
Wolf	-	-	-	-	-	-	-	-
Wolverine	-	-	-	-	-	-	-	-
		\$4,580.50		\$7,651.50		\$14,108.55		\$2,836.40



Major Local Sales of Resource- Harvesting Equipment in 1965

<u>Commodity</u>	<u>Quantity</u>	<u>Av. Price</u>
Nets	8	\$20.00 a net
Outboard gas	500 gal.	65 cents a gal.
Outboard oil	300 qt.	85 " " "
303 rifle	1	95.00
22 rifle	3	20.00

The outboard gas is supplemented from discarded caches left by petroleum companies. Purchases of other types of resource-harvesting equipment takes place at other settlements as well, principally Inuvik.

Permanent Employment - Arctic Red River 1966

Arctic Red River has the lowest number of permanently employed of the settlements surveyed in 1966.

Arctic Red - Permanent Employment - 1966

	<u>White</u>		<u>Indian</u>		<u>Other</u>	
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
I.A. & N.D.	1					
R.C.M.P.	1					
H.B.C.	1			1 p.t.		
Missions	1			1 p.t.		

The minor amount of casual labour, which varies from year to year, has been discussed elsewhere in the report.

Arctic RedIncome from D.N.A. Employment 1965 - All Forms

<u>No. of Individuals</u>	<u>Period Worked</u>	<u>Amount of Income</u>
1	December	93.60
1	March, May	268.77
1	March, June, September	280.30
1	March, June, September	275.04
1	March, December	322.08
1	March	211.68
1	March	181.44
1	July, August, September	
	October	515.60
1	March	181.44
1	March	211.68
1	March, July - December	2,210.57

As can be noted from the income statistics given above, employment provided limited amounts of income to the community. The top income was earned by the school caretaker. He supplements this income by some hunting and trapping, fishing, gardening and occasional rental of equipment.



In 1965-66, a Metis (Japanese/Indian) was employed by the R.C.M.P. as special constable. His annual estimated income was \$2,000. In addition to normal pay he received housing and services.

#### Estimates of Income From All Sources

A survey by the Indian Affairs Branch in 1964 gave the following estimates of total income.

	<u>No. of Workers</u>	<u>Man Months</u>	<u>Est. Income</u>
Fishing	12	48	
Trapping	31	150	30,000.00
Guiding	9	24	8,000.00
Casual Lab.	4	24	8,000.00
			<u>\$46,000.00</u>

#### Polling Lists

In the polling lists of 1965, eleven persons listed themselves as trappers, fifteen as labourers and six as pensioners. During the 1966 survey, two men signified they were employed on a casual basis by oil companies. Two others stated they worked part-time for Northern Affairs and National Resources as labourers and carpenters' assistants.

#### The Income from Guiding at Great Bear Lake

In 1965, five men from Arctic Red River were employed at Great Bear Lake. In 1966, six men are employed. The individual returns from this type of employment average \$410 for the season, not including tips or gifts. This is based on the potential income, with deductions for air fare between Inuvik and Norman Wells. Total estimated income for 1965 was \$2,050. In 1966 the total estimated income was \$2,460.

In 1966, Arctic Red River Indians employed with a construction firm in Inuvik, left this employment to go to Great Bear Lake for the guiding season.

Local opportunities for guiding are virtually non-existent. However, the re-location of an Imperial Oil base-camp from Fort McPherson to Arctic Red River in the summer of 1966, should provide some opportunities for employment with seismic parties and for casual labour about the base-camp.

#### Critical Periods in the Local Economy

On an annual basis, the critical periods are in January and February, when trapping has reached a low ebb due to low temperatures. July and August form another critical period after spring trapping has ceased. These periods have been partially overcome through winter works, logging programs and minor amounts of casual labour. In the summer, the younger men leave the community to work as casual labourers at Inuvik or to take guiding jobs at Great Bear Lake. The proximity of Inuvik to Arctic Red River, enables the men to maintain contact with their families. The older age group spends the summer period fishing and waiting for the trapping season to begin. This is in line with the established



subsistence cycle.

Arctic Red River - Estimated Total Income all Sources - 1965

Trapping	\$14,785.45 (1964-65)
Lumbering	2,545.20 (1964-65)
Guiding elsewhere	2,050.00
Casual employment (local)	2,266.59
Casual employment (elsewhere)	5,000.00
Permanent employment	5,210.57
Winter works	1,500.00
Social Assistance	1,248.45
Pensions	7,800.00
Family Allowances	1,680.00
Value of country food ★	8,000.00
Treaty monies	370.00
	<hr/>
	\$52,456.26

★ Value of fish and meat from fur bearing animals not included.  
Approximate per capita income is \$753.00.

Old Age Pensions

There are ten old age pensioners in the community. One old age pension couple support themselves and contribute to the support of three others, including two adults. Another couple support a teenage daughter on the returns from the old age pension.

Annual total revenues from old age pensions amount to \$7,800 in this community.

Family Allowance

The family allowance returns, in direct form, are considerably reduced by the fact that school-aged children attend school in Inuvik.

Handicrafts

Handicraft production receives very little stimulus at the local level. Visitors to the community are not numerous at any time. The survey revealed no one in the community who was actively engaged in handicraft production. The total lack of handicraft production is in contrast to



other settlements in the region, where handicrafts are an important part of the local economy. This obviously results from a lack of demand and a lack of leadership in the community.

### Resource Harvesting

Resource-harvesting equipment owned by residents has been included in the section on trapping.

### Social Assistance

Social Assistance in Arctic Red River is handled by the R.C.M.P., who act on the advice of the Department of Indian Affairs and Northern Development.

The amount of social assistance is small. This is due to a number of factors. The major one is the small population and its relative isolation, in respect to agencies responsible for social assistance.

### Social Assistance Arctic Red River

<u>1965</u>		<u>1966 (to August 15)</u>	
<u>No. of Cases</u>	<u>Amount</u>	<u>No. of Cases</u>	<u>Amount</u>
5	\$1,248.45	9	\$698.95

Issues made for the purchase of food constituted 93 per cent of the social assistance in 1965. In 1966, issues made for food constituted slightly over 82 per cent of the social assistance.

Food and clothing constituted the major items in social assistance. Due to the prevailing use of local firewood for heating and cooking, fuel does not constitute a major item of social assistance in this settlement.

### Direct Relief Issues

Under the Indian Affairs Branch social assistance program, direct relief issues on a monthly basis amounted to \$25.00 for family heads, \$17.00 for women and those over sixteen, and \$15.00 for those under sixteen years of age.

### Local Government

There is no advisory council at Arctic Red River. Administration is handled by the Administrator at Fort McPherson.

The Indian Band Council shows some leadership but in recent years the Chief has spent very little time at the settlement. He is now involved in building a new house in the settlement and is planning to develop a market garden. Opposition to the reticence of the Council is shown by younger men in the community, who would like to see a more aggressive



attitude in seeking out assistance from the Government. (1)

#### Potentials for Development

It appears to be debatable whether steps should be taken by Government agencies to re-activate this community. This would be in direct conflict with the centralizing forces now in operation within the region.

While the economic potentials are limited, exploitation of the game and fur resource base could be expanded. Fishing is a declining subsistence activity. Saw-milling activities on the Arctic Red River will provide a source of employment for the residual population. In terms of annual average per capita income, Arctic is lowest in the scale of all settlements surveyed in 1966.

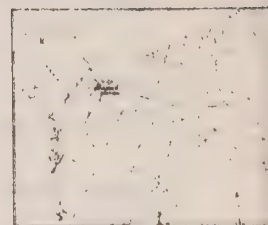
Expanding the resource utilization base would involve encouraging a number of people to revert from a wage economy elsewhere and this is unlikely to occur.

Outright re-location of the existing population does not appear to be feasible. They are well aware of the lack of opportunity at Arctic Red River, but as hunters and trappers they are familiar with the area and have a tendency to be conservative in outlook.

Re-location of younger adults and families will presumably continue to Inuvik and elsewhere.

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- (1) Increases in social assistance will occur through the amalgamation of the Indian Affairs Branch with the Department of Northern Affairs and National Resources in 1966.





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PHOTOGRAPH	COMPILED
BY AIRBORNE SURVEYS UNIT	EQUIP TYPE A & B
DATE AUGUST 1966	AGENCY FEDERAL BUREAU OF SURVEY
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REMARKS: 1. REINDEER STATION 2. REINDEER STATION 3. REINDEER STATION	
UNIT NO. 1	REINDEER STATION N.W.T.

H.B.C.

to Inuvik →



## REINDEER STATION

Reindeer Station, (68° 31' N., 137° 07' W), represents a rather unique settlement in the lower Mackenzie region in being a "company" settlement. The settlement functions as the headquarters of the reindeer project. It serves a role as a supply center for trappers operating in the delta area, but the majority of these trappers now prefer to use Inuvik as their major supply center, particularly in the summer, when Inuvik can be reached easily by boat.

### Physical Setting

The settlement occupies an area of approximately ten acres on level ground, on the east bank of the East Channel. Immediately east of the settlement a scarp rises for five hundred feet at an approximate forty-five degree angle. Local vegetation consists of spruce and birch with willow and alder stands. The settlement area is well grassed. On top of the scarp, grassy tundra is predominant.

Soils consist of loams underlain by silts, in which ice lenses are interspersed.

River depths are shallow for the approach of standard shallow draft barges and tugs used by the Northern Transportation Company. In 1966, dredging operations were carried out to deepen the approach to the docking areas. An established docking area is used in loading and unloading boats.

Float planes use the river for landing facilities during the summer. In winter ski-equipped planes land in front of the settlement.

### Water Supply

The major source of drinking water is river-ice stored in ice cellars. The river water is satisfactory for other purposes after silt is allowed to settle. There are lakes at the top of the scarp which could be used as a source of drinking water during the summer. This would necessitate the installation of plastic piping, collection tanks and a small pumping unit. In the summer clear water from silt-free lakes is barged to the settlement.

### Power Supply

The power supply is provided by a small power plant (25 k.w. capacity) located centrally in the settlement. This provides power to all houses in the settlement and the local store.

### Garbage and Sewage Disposal

Garbage and sewage is dumped in a sewage lagoon located three-quarters of a mile north of the settlement. Chemical toilets are used in the houses. Plastic bags and garbage barrels are collected periodically by tractor, and hauled to the sewage lagoon.



## Roads

Due to the rather compact nature of the settlement there is little necessity for an established road system. Tractors and other equipment are used on established trails. A wooden sidewalk system is used for pedestrian travel within the main settlement compound.

## School

The one-classroom school unit is located at the northern end of the community. It consists of a one-classroom frame unit. Normal staffing consists of one teacher. Thirteen children in advanced grades attend the Inuvik school and are resident in the hostels there.

## School Attendance - Reindeer Station

	<u>No. of Teachers</u>	<u>Pupils</u>		<u>Grade Range</u>					
1963-64		M.	F.	1	2	3	4	5	6
	1	5	7	4	3	1	1	3	-
1964-65	1	7	9	2	4	3	1	3	3

## Educational Levels - Adult Population

While the adult population is relatively fluent in English, only six of the twenty-one family units in the Reindeer Station area, indicated that they had received formal schooling. Grade five was the maximum level attained in formal education. One person aged twenty-four had been to Yellowknife for one year on a carpentry course. A teenage boy is now attending Yellowknife.

## Store

The Hudson's Bay Company store is located at the southern edge of the community. It provides a varied stock, including some types of fresh meat. The price range is slightly higher, (average of five cents), for some articles, in comparison to Inuvik. Higher prices pertain particularly to drummed gasoline.

## Transportation and Communications

Boats are normally used for transportation during the summer, between Reindeer Station and Inuvik. In winter, trucks from Inuvik are used on trails on the river-ice, but as the snow cover increases, bombardier skidoos and dog teams are used along an established trail on the river-ice.

Charter air services are available from Inuvik. Mail delivery is on a courtesy basis and delivered weekly, either by boat or plane from Inuvik.

Until 1966, the communication between Reindeer Station and Inuvik consisted of radio established schedules. Completion of the C.N.T. line in the autumn of 1966, provided a telephone service for the community.

Communication with herders in outlying areas is maintained by two-way radios. Transportation to and from the reindeer herd, is by dog team. Chartered aircraft and a bombardier are used to provide supplementary



forms of transportation primarily under the direction of the Reindeer Project manager.

### Church

A small log building is used for local church services. The Eskimo population is Pentecostal in religion. The Pentecostal religion was introduced into the region by a transient worker from Edmonton in 1945, and adopted by a number of Eskimos. (1)

### Recreation Facilities

A small Quonset hut is used for recreation facilities and community meetings. While organized recreation facilities are lacking, there are ample opportunities for outdoor recreation in the form of skiing, fishing, etc. An annual sports day, held on July 1, attracts visitors from Aklavik, Inuvik and the delta.

### Organizations

The community is lacking in established organizations with the exception of a local Women's Institute.

### Health

A public health nurse makes periodic, (monthly), visits to the community by chartered aircraft, from Inuvik.

### Population

The population of Reindeer Station is predominantly Eskimo, the same as the delta area between Shallow Bay and the station. There are no long-term resident white families as may be encountered in Aklavik, and more recently Inuvik. One Lapp family has been connected with the Reindeer Project since its beginning. The population is actively involved in resource-harvesting activities in the surrounding area.

The population consists of twenty-three family units, ten of which are Eskimo families resident at Reindeer Station. Thirteen trapping families live in the central delta area between Reindeer Station on the east, and Shallow Bay on the west. Reindeer Channel forms the northern boundary and Napoiak Channel the southern boundary.

The population statistics also include a Lapp family, a mixed white-Eskimo family, an adult Scandinavian male and a family of four whites (the teacher and his family).

One Metis family is closely associated with Reindeer Station. The family head is a trapper and semi-skilled carpenter.

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(1) Pentecostal missionaries appeared in the Mackenzie Delta in 1945 and began active missionary work in the early nineteen fifties. The Eskimos at Reindeer Station became actively interested in Pentecostalism in this period.



POPULATION STATISTICS - BUSH AND SETTLEMENT ESKIMOS

Population by Age and Sex

<u>AGE</u>	<u>MALE</u>	<u>FEMALE</u>	<u>TOTAL</u>
1 or less	2	3	5
2	0	1	1
3	5	1	6
4	4	2	6
5	3	2	5
6	4	6	10
7	2	0	2
8	3	4	7
9	0	1	1
10	2	5	7
11	1	1	2
12	3	4	7
13	4	0	4
14	2	3	5
15 - 20	10	11	21
21 - 25	5	3	8
26 - 35	6	7	13
36 - 45	9	5	14
46 - 55	7	7	14
56 - 64	7	3	10
65 and over	0	1	1
TOTALS	79	70	149



Eskimo Population - Reindeer Station In Settlement Population

(Summer 1966)

	<u>M</u>	<u>F</u>
60		
51-60	2	1
41-50	3	1
36-40	1	1
31-35		2
21-30		
15-20	3	3
14		2
13	1	
12	1	1
11		
10	1	2
9		
8	2	1
7	2	
6	2	3
5		
4	3	1
3	1	
2		1
1	<u>1</u>	<u>1</u>
	23	20

In 1961 the Eskimo population of Reindeer Station was 76. The decline in population is mainly attributable to changes in Reindeer management policies and the release of three Eskimos from employment.



POPULATION BY AGE GROUPS

<u>Can.</u>	<u>Rein. St.</u>	<u>Can.</u>	<u>Rein. St.</u>	<u>Can.</u>	<u>Rein. St.</u>
0 - 14		15 - 64		65 +	
34%	46%	58%	53%	8%	1%

POPULATION BY AGE GROUPS

	0- 21	0 - 14	15 - 64	65 +
MALE	46	35	44	0
FEMALE	49	33	36	1
TOTALS	95	68	80	1
PERCENTAGE	69.8%	45.6%	53.7%	0.7%

COMPARISON WITH ARCTIC DISTRICT AND CANADA

ARCTIC DISTRICT (1965)	60%	47%	51.2%	1.8%
CANADA (1961)	42%	34%	58.4%	7.8%
REINDEER STATION (1966)	69.8%	45.6%	53.7%	0.7%



There is very little difference in age groups, segregation by sex or other demographic factors between the in-settlement population and the bush group.

### Housing

A considerable variety of housing types exist in Reindeer Station, ranging from the small rigid frame unit to the three-two-story frame dwellings, which have been in existence for a number of years. The present manager of the Reindeer project has used, to good advantage, surplus housing available from the abandoned radar site at Tununuk.

In many respects, the housing is satisfactory to local conditions. A housing survey in 1966 pointed out a number of deficiencies in regard to local housing, on an assessment basis compared with housing standards in southern Canada. The results of this survey are included in the report.

Replacement of the housing, while it would improve present conditions, must be considered from the physical and human aspects of the community. Reindeer Station has comparable or superior facilities in comparison to hundreds of small bush communities elsewhere in Canada.

All houses are heated with oil stoves and in some cases, this is supplemented with oil heaters.

### Employment in the Reindeer Project

Under the present system of management there are limitations to the number of local people who can be employed in the Reindeer project. The use of the open-herd system during the summer instituted in the nineteen sixties, has eliminated the necessity of having herders on the range during the summer. In mid-summer a herder is stationed at Tuktoyaktuk.

### Current Status of Employment in respect to the Reindeer Project

<u>Position</u>	<u>Ethnic Status</u>	<u>Total Estimated Annual Income not including fringe benefits</u>
Manager Station	White	\$8,000 - \$9,000
Mechanic	Eskimo	5,280
Senior Herder	Lapp	4,800
Herder	Eskimo	4,200
Herder	Eskimo	4,200
Herder	Eskimo	4,200
Herder	Eskimo	4,200
Herder	Eskimo	4,200
Herder	Eskimo	4,200
		<u>\$42,280</u>

The number employed in the reindeer project shows a minor decrease over the past few years as a result of implementing new management policies, such as the use of open herding in the summer, and an increase in the use of plane charters in herd surveillance.



Place of Origin Eskimo Reindeer Herders

	<u>Birthplace</u>	<u>Year of Birth</u>
1	Coppermine	1919
1	Aklavik	1922
1	Aklavik	1919
1	Mackenzie Delta	1910
1	Alaska	1913
1	Baillie Island	1924

As can be noted from the table presented above, the Eskimo herdsman are all in the middle-age group and with two exceptions, are from the lower Mackenzie region.

In addition to the wages paid to persons engaged in the reindeer project, there are subsidiary benefits in the form of free housing and utilities. The herders and their families also receive regular issues of fresh reindeer meat, which is periodically flown into the station from the herd camps. For example, in 1964-65 fifty-six reindeer carcasses were issued for use in herd camps and at Reindeer Station. This represented 6,495 pounds of meat valued at \$2,598.

The herder's monthly salary consists of a cash payment of \$350 and a meat issue of 140 pounds of reindeer meat. The work week consists of a forty-hour week with time off being given for overtime. The housing and utilities are provided free. In sum total, the monthly income of the herders compares most favourably with employment conditions prevailing in other settlements. In addition, the herders spend the majority of their time working outside, in contrast to local employees in other settlements, who spend more time in the confining atmosphere of offices, warehouses or machine shops. The employment situation has remained constant at Reindeer Station since 1963.

Small numbers of casual labourers find employment from time to time at Reindeer Station. These are usually men with special skills in carpentry or experience in the Reindeer project and work for short-term periods. The majority of these are drawn from the trapping population in the immediate vicinity of the station.

Minor amounts of employment are also made available to the Tuktoyaktuk people. This employment takes the form of assisting with the summer or autumn reindeer slaughters. In 1964-65, expenditures on extra help amounted to \$7,493.64.

An increase in employment will arise chiefly in the processing industries expanding because of an increase in herd numbers. The projected herd increases and the establishment of processing industries, (canneries, leather tanning industries), could inject substantial amounts of money into the regional economy. A canning operation to process reindeer meat alone would be a short-term seasonal operation, but if integrated with the processing of other local foods it would become more economically feasible.



### Supplementary Sources of Income

The herders supplement their income from the Reindeer Project by trapping and carving. They carve reindeer antlers into small curios which are quite attractive. The handicraft industry at Reindeer Station received some impetus from the Scandinavian manager. Samples of the caribou antler carvings from Baker Lake were shown in 1963 to the Eskimos, as examples of what could be done with reindeer antlers.

The women produce mukluks and small fur items from rabbit, muskrat and reindeer skins. These are either sold locally to visitors or in Inuvik.

Substantial amounts of resource-harvesting equipment is privately owned by individuals and this is used in free time. Larger equipment belonging to the Reindeer project, is also used with permission from the manager. Dog teams used in reindeer herding are also used in hunting and trapping.

### Resource-Harvesting Equipment owned by Eskimo Reindeer Project Employees 1966

<u>Employee</u>	<u>Boats</u>	<u>Motors</u>	<u>Dogs</u>	<u>Bombardier Skidoo*</u>	<u>Rifles</u>	<u>Traps</u>	<u>Nets</u>
1	canoe	40 h.p. 18 h.p.	2		3(.22)	15	1
		40 h.p. 28 h.p. 10 h.p.			30.30 243 22		
2	boat	3 h.p.	9		12 gauge	20	3
	inboard skiff	40 h.p. 28 h.p.			243 22		
3	speedboat	10 h.p.	11		12 gauge		
					30.30 4(.22)		
4	2 boats	18 h.p. 10 h.p.	9		2(12 gauge)		4
					300 2(.22)		
5	canoe	18 h.p.	9		16 gauge		
					308		
6	canoe	2(18 h.p.)	1		12 gauge	(1)	

(1) A bombardier is owned by a Reindeer Station Eskimo, employed as equipment mechanic.



As can be seen from the table presented above, the Eskimo herdsman own large amounts of resource-harvesting equipment. This tendency to acquire equipment beyond ordinary needs, was noted among DEW Line Eskimos in full-time employment in the early nineteen sixties.

Fur Returns for Eskimo Herders and other Eskimo Personnel  
engaged in part-time trapping Activities

<u>Trapper</u>	<u>1963-64</u>	<u>1964-65</u>
1	328.20	40.00
2	59.60	did not trap
3	124.70	84.20

The relatively limited returns from trapping are due to the area being occupied by full-time trappers, and the satisfactory returns enjoyed by Eskimo herders.

Income Sources - Eskimo Population - 1965 - Reindeer Station  
(not including bush population)

Herding - direct income	\$19,920.00
Trapping	124.20
Forms of employment with the Reindeer Project other than herding	5,280.00
Handicrafts	3,000.00 (est.)
Casual Employment	1,500.00 (est.)
O.A.P. - no one qualified	
Social Assistance - no one qualified	
Family Allowances -	<u>2,688.00 (1)</u>
	\$32,512.20

Approximate per capita income - \$756.09

(1) Includes Family Allowance Returns for children attending school in Inuvik.



Trapping Returns - Trappers operating in Reindeer Station Area  
1964-65

<u>Trappers</u>	<u>Value of Fur Taken</u>
1	843.25
1	800.65
1	1,848.95
1	2,387.90
1	44.00
1	568.10
1	521.50
1	161.50
1	254.80
1	838.20
1	943.25
1	132.35
1	17.00
1	838.20
1	607.95
1	497.10
1	2,197.45
1	1,004.10
1	702.40
	<hr/>
	\$15,208.65

Only three full-time trappers in the Reindeer Station area traded furs at Reindeer Station. The remainder traded furs at Inuvik.

Producers of Handicrafts - Trappers in the Reindeer Station area

<u>M</u>	<u>F</u>	<u>Type of Handicraft</u>
-	-	Assorted fur souvenirs (muskrat, rabbit, lynx)
-	-	Both man and wife produce wood carvings
-	-	Assorted fur souvenirs
-	-	Assorted fur souvenirs
-	-	Wood carving (wife does assorted)
-	-	Both man and wife carve in wood, (soapstone when they can get it)
-	-	Assorted fur souvenirs

Local furs are used in production of fur souvenirs. Driftwood picked up in the area is used in the production of carvings.

Fur Trade at Reindeer Station

The volume of furs traded at Reindeer Station has shown some variation in the period 1961-65. The bulk of the furs is from those traded by full-time trappers operating in the central delta area.



## FURS TRADED AT REINDEER STATION

Table

Species	1961 - 62		1962 - 63		1963 - 64		1964 - 65	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Bear, Polar	-	-	-	-	4	450.00	-	-
Beaver	-	-	-	-	1	10.00	8	73.00
Fox, Blue	-	-	-	-	-	-	-	-
Fox, Cross	-	-	-	-	4	17.50	-	-
Fox, Red	-	-	1	4.00	4	20.00	-	-
Fox, Silver	-	-	-	-	-	-	1	8.00
Fox, White	2	40.00	1	10.00	18	385.00	1	-
Lynx	1	5.00	11	95.00	51	590.00	18	192.00
Mink	34	688.00	16	410.00	124	3,941.00	53	1,147.00
Marten	4	24.00	4	49.00	37	519.50	1	13.00
Muskrat	5,452	3,436.00	3,529	3,149.65	4,834	5,187.15	5,058	4,492.35
Squirrel	-	-	-	-	-	1.15	3	1.65
Weasel	7	2.70	35	19.25	86	60.15	23	16.50
Seal	-	-	-	-	8	158.00	22	521.00
TOTALS		\$4,195.70		\$3,736.90		\$11,339.45		\$6,464.50



Estimated Income Bush Trappers - Reindeer Station Area

Fur Income	\$15,208.65
Social Assistance	2,242.20
Old Age Pensions	780.00
Family Allowances *	2,772.00
Casual Labour	4,500.00
Handicrafts (estimated)	3,000.00
Employment as guide (Department Mines and Technical Surveys)	900.00
Commercial Fishing	<u>2,000.00</u>
	\$31,582.85

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★ 17 children attend school in Inuvik and are hostel residents.



Social Assistance - Reindeer Station

The teacher at Reindeer Station fulfills the role of welfare officer for local residents and thirteen delta trappers and their families, in the area between Shallow Bay and Reindeer Station. The statistics given below pertain to people not involved in the Reindeer project, but living at delta locations in the vicinity of Reindeer Station.

Social Assistance 1965 - Reindeer Station

<u>Amount</u>	<u>No. of Cases</u>	<u>Amount</u>
Less than \$49	5	\$138.00
\$50 to \$99	4	267.00
\$100 to \$199	3	430.00
\$200 to \$299	1	208.00
\$300 to \$399	1	307.90
\$400 to \$499	2	891.30
	16	\$2,242.20

Food constituted the main item of social assistance seconded by minor amounts of clothing. Social assistance, in the form of dog food, amounted to \$50, while social assistance in the form of ammunition issue, amounted to only \$15.

Reindeer Station is a small, cohesive community, functioning almost solely as an operation center for the reindeer project. In specific relation to the reindeer herd, Reindeer Station lies mid-way between the wintering and summering grounds of the reindeer. In winter, the herders are involved in herd operations in the vicinity of Inuvik between the Sitidgi Lakes. Ground herding practises begin in the late autumn as the southward migration of deer occurs, from the coastal and tundra areas, and continues through the winter. In the spring, the herd is followed north until travel conditions deteriorate, and the herd disperses into small groups on the summer grazing area.

Short-term slaughter operations are located some distance from the station. In terms of resource utilization, local fish resources are used within the general vicinity of the station. Whaling and fishing activities are carried out at Kidluit Bay and Whitefish Station, to supply winter resources of whale meat and fish.

While there would be some strategy in re-locating the headquarters of the Reindeer project at Inuvik, a conflict of interest would undoubtedly arise for herders and their families, settled in an urban environment, with a multitude of attractions.

The expense of maintaining Reindeer Station can be equated with the living requirements of a group of conscientious workers willing to work within the unique circumstances of the reindeer project.

Three trappers, resident in the Reindeer Station area, signified they were employed on a casual basis with the reindeer project. One, a Metis, is a semi-skilled carpenter.



Reindeer Station

As a "company" settlement, there are obvious limits to its economic expansion and the absorption of the younger population into the Reindeer Industry. The bulk of the younger population will undoubtedly resettle in Inuvik where it will have to be absorbed into the economic base of the future. The educational patterns established in recent years indicate that casual labour will be highly unsatisfactory to the economic goals of this group.



## TUKTOYAKTUK

Tuktoyaktuk (69° 27' north and 133° 05' west) is situated on the Arctic coast 20 miles north-east of the mouth of the east Channel. Most of the settlement is located on a boot-shaped spit of land which is bounded on the east by Tuktoyaktuk Harbour and on the north and west by the Beaufort Sea. The soils consists of unsorted till materials (silts, sands, clays) with a surface covering of peat, cobbles or organic material.

The vegetation consists of grass and low growing shrubs, Labrador Tea and ground willows.

### Drainage

Topography is the major factor in drainage. The area surrounding Tuktoyaktuk is characterized by low swampy areas, ponds and tundra polygons. The pingoes, south-west of the settlement, break the general low level of the terrain. The portion of the settlement, located on the spit, is relatively well drained. The southern part of the settlement, along the south shore of the bay, is less well drained and this is the location where there has been an expansion in Eskimo housing in recent years.

Permafrost occurs at depths of from 18 inches to four feet. In zones of unsorted till, the permafrost serves as a binding agent. Elsewhere, ice occurs in unsorted lenses in grey silt while in frozenpeat areas both ice lenses and amorphous permafrost conditions exist.

Different types of building foundations have been used with variable success. Among the most successful has been the use of gravel pads leaving the permafrost in an undisturbed state.

### Land Erosion and Filling of Low Areas

Rapid erosion is occurring at the north-western part of the spit where the shoreline has receded over 100 feet in the last six years. This is an empty quarter of the settlement being occupied by the R.C.M.P. and on the south-east by the Roman Catholic and Anglican missions and Eskimo housing.

It is rather unfortunate that erosion is being permitted to destroy the northern part of the spit since this appears to be one of the most attractive building areas in the settlement.

There is some potential for land reclamation through filling in of small lakes and ponds such as exists between the Hudson's Bay Company and Polar Arctic Enterprises Limited.

### Tuktoyaktuk

The Tuktoyaktuk settlement and its general resource base was examined by G. Abrahamson in 1962. A number of changes have occurred since 1962 and these will be dealt with in this report. Reference has been made elsewhere in the report to various factors which warrant examination on a regional rather than a settlement basis.

While the community is located in an Arctic regime, it is closely associated with the sub-arctic settlements of Inuvik and Aklavik sense. For administrative



purposes the community is linked to Inuvik and is served by extensions of the water transportation system used on the Mackenzie. A number of the inhabitants of Tuktoyaktuk have spent intervals in Inuvik or Aklavik. The Eskimos of Tuktoyaktuk, Inuvik and Aklavik share a common interest in whaling.

The general resource area extends well into the sub-Arctic zone particularly during the trapping season.

Eskimo Population, Tuktoyaktuk, 1962

<u>Male</u>	<u>Female</u>	<u>Age</u>
2	1	70+
2	2	65-90
1	1	60-64
6	2	55-59
8	2	50-54
	7	45-49
14	10	40-44
16	10	35-39
5	7	30-34
9	13	25-29
10	11	20-24
21	27	15-19
33	17	10-14
37	37	5-9
<u>54</u>	<u>38</u>	0-4
220	185	

Family Units - Tuktoyaktuk 1966

There are 58 Eskimo family units in Tuktoyaktuk, three family units classed as white (Metis) and one Indian family.

There are 44 single Eskimo males and 19 single Eskimo females.



Eskimo Population (Family Groups) Tuktoyaktuk 1966

<u>Age</u>	<u>M</u>	<u>F</u>
60+	3	1
51-60	16	9
41-50	14	17
36-40	6	8
31-35		6
21-30	7	15
15-20	21	16
14	6	8
13	3	2
12	8	5
11	3	9
10	9	6
9	6	10
8	11	3
7	7	3
6	11	7
5	9	5
3	9	5
2	9	11
1	18	13
	<u>176</u>	<u>159</u>

Size of Eskimo Family Units Tuktoyaktuk 1966

<u>No. of Members</u>	<u>No. of Families</u>
up to 3	21
4 - 6	13
7 - 8	16
9 - 10	3
<u>11 - 12</u>	<u>5</u>
335 members	Total 58 family units



Single People - Tuktoyaktuk

	<u>M</u>	<u>F</u>
60+	1	1
51-60	2	1
41-50	2	
36-40	6	1
31-35	1	1
21-30	20	9
15-20	12	6

As can be seen from the statistics given above there is a large single Eskimo population in Tuktoyaktuk. In a community where job potentials are limited this places some strain on the local economy. There is a tendency among local employment agencies to favour family men in regard to job opportunities for reasons of greater economic need. Also married men are inclined to be more stable in employment through greater economic need.

Other Permanent Residents Tuktoyaktuk

<u>Age</u>	<u>M</u>	<u>F</u>
61-70	1	
51-60		
41-50		
36-40		
31-35	1	
21-30	1	2
15-20		
14	2	
13		
12		1
11		
10		
9		
8		
7	1	
6		
5		
4		
3		
2	1	
1		
	<u>7</u>	<u>3</u>

The table above lists the age and sex of a white/Eskimo group. It consists primarily of two families headed by two young men who are hard workers and active in community affairs.



Tuktoyaktuk Births/1964

<u>S</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Date</u>	<u>Location</u>
F		-			Nov./64	I.G.H.
F		-			Oct./64	N.S.
F		-			Oct./64	N.S.
M		-			Aug./64	I.G.H.
M		-			Aug./64	N.S.
F		-			Aug./64	I.G.H.
M		-			Nov./64	N.S.
F	-				March/64	I.G.H. - non-permanent
F	-				May/64	I.G.H. - non-permanent
F		-			May/64	I.G.H.
M		-			April/64	I.G.H.
F		-			March/64	I.G.H.
F		-			Feb./64	N.S.
M		-			Jan./64	N.S.
F		-			Jan./64	I.G.H.
F		-			Aug./64	I.G.H.
F		-			Aug./64	N.S.
F		-			Aug./64	N.S.
M		-			July/64	N.S.*
M	-				June/64	N.S. - permanent white
F	-				June/64	I.G.H. - non-permanent
M		-			June/64	I.G.H.
F		-			June/64	I.G.H.
F		-			Dec./64	I.G.H.
M		-			Oct./64	I.G.H.
M		-			Oct./64	N.S.
Totals	4	22				

F		-			Aug./65	N.S.*
M		-			June/65	I.G.H.*
M		-			May/65	N.S.
M	-				Sent./65	I.G.H. - non-permanent w
F	-				Sept./65	N.S. - permanent
F		-			Jan./65	N.S.
M		-			Jan./65	I.G.H.*
M		-			Jan./65	I.G.H.
M		-			March/65	I.G.H.
F		-			March/65	I.G.H.
M		-			March/65	I.G.H.
M		-			Feb./65	I.G.H.
M		-			Feb./65	I.G.H.
M		-			Feb./65	I.G.H.
M	-				May/65	N.S. - permanent white
F		-			May/65	N.S.
M		-			April/65	N.S.*
M		-			April/65	I.G.H.*
F		-			April/65	N.S.
F		-			May/65	N.S.
Totals	2	17				

N.S. - Nursing Station

I.G.H. - Inuvik General Hospital

\*- Father Unknown



Tuktoyaktuk Births/1966

<u>S</u>	<u>W</u>	<u>E</u>	<u>I</u>	<u>M</u>	<u>Date</u>	<u>Location</u>
M						
M	-				Oct./66	I.G.H. - non-permanent
F		-			Oct./66	N.S.
F		-			Nov./66	N.S.*
M		-			June/66	I.G.H.*
M		-			June/66	I.G.H.
M					May/66	I.G.H.
M	-				April/66	N.S.*
M	-				April/66	I.G.H.
F	-				March/66	N.S.
F	-				May/66	N.S.*
F	-				March/66	N.S.
M	-				Feb./66	I.G.H.
F	-				Jan./66	I.G.H.
M	-				April/66	I.G.H.
M	-				Aug./66	I.G.H.
F	-				Aug./66	N.S.
M	-				Aug./66	N.S.*

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Tuktoyaktuk Deaths 1964

The following is a list of recent deaths in Tuktoyaktuk. Age and cause of death is included in the tables.

<u>1964</u>	<u>Age</u>	<u>Cause of Death</u>
F -	6 1/4 mos.	Acute progressive
M -	15 days	Nicrosis (17 hours)
M -	7 yrs. 7 mos.	Asphyxia internal haemorrhage
M - <u>White/Eskimo</u>	14 yrs.	Accidental drowning

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Tuktoyaktuk Deaths 1965-66S W E I MAgeCause of Death1965

F	-	27 yrs.	Methylhydrate poisoning
M	-	3 yrs.	Methyl hydrate poisoning
F	-	70 yrs.	Carcinoma of pancreas
M	-	86 yrs.	Possible Coronary
	<u>4</u>		

1966

F	-	2 mos. 2 days	Pneumonia - possible malnutrition
M	-	3 mos.	Pneumonia
	<u>2</u>		

ESKIMO POPULATION BY AGE GROUPS IN COMPARISON WITH POPULATION OF CANADA

Can.	Tuk.	Can.	Tuk.	Can.	Tuk.
47%	56%	58%	43%	8%	1%
0-14		15-64		65 and over	

ESKIMO POPULATION BY AGE GROUPS

	<u>Age (inclusive)</u>			
	0 - 21	0 - 14	15 - 64	65-
Male	156	125	91	3
Female	122	96	80	1
Total	278	221	171	4
Percentage	70%	56%	43%	1%

COMPARISON WITH ARCTIC DISTRICT AND CANADA

Arctic District				
(1965)	60%	47%	51.2%	1.8%
Canada (1961)	42%	34%	58.4%	7.6%
Tuktoyaktuk (1966)	70%	56%	43%	1%



Out-migration from the community has tended to be a stabilizing factor in population numbers. Families have moved elsewhere to Inuvik, Cape Parry and Paulatuk. Those with extensive DEW Line experience and vocational training are easily absorbed into the semi-skilled work force in Inuvik and are to be found working for N.C.P.C. or other government agencies. Others for health reasons have settled in the Rehabilitation Centre at Inuvik.

#### The Non-Permanent White Population at Tuktoyaktuk 1966

The non-permanent white population of Tuktoyaktuk is concerned with administrative functions, education, health, the operation of store facilities and maintenance of the physical plant. Missionaries are also included in this category of non-permanent population.

1. Area Administrator - Department of Indian Affairs and Northern Development and family
2. Clerk - D.I. A. & N.D. - and family
3. Five Teachers - Single and Married Status
4. Fur Garment Shop Manager and family
5. Assistant Manager Fur Garment Shop
6. Equipment Mechanic and family - D.I.A. & N.D.
7. R.C.M.P. Officers - 2
8. Northern Health Services - 2 Nurses
9. Hudson's Bay Company Manager and family and two single male clerks.
10. Pentecostal Missionary and wife
11. Anglican Missionary and family
12. Roman Catholic Priest
13. Northern Transportation Company - Small Caretaker Staff - greatly expanded in the summer by an influx of seasonal workers

In addition, there is a large DEW Line base nearby.

Department of Indian Affairs and Northern Development (formerly Dept. of Northern Affairs and National Resources)

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Administration is handled in the community by an area administrator. He is assisted by a clerk. The physical plant is maintained by an equipment mechanic with Eskimo assistants.

The power plant with a 200 K.W. capacity is operated by the Department of Indian Affairs and Northern Development. Power is supplied to other agencies in the community. The plant is maintained by a white mechanic with Eskimo assistance.

#### R.C.M.P.

The Tuktoyaktuk R.C.M.P. detachment consists of two R.C.M.P. constables. The detachment also is responsible for the Cape Parry Paulatuk area to the east.

Law enforcement is not a serious problem in the community.

#### Permanent Employment - Tuktoyaktuk

The following is a brief outline of permanent employment available in the community.



	White		Eskimo		Indian	
	M	F	M	F	M	F
I.A. & N.D.	2		1			
	1		2			
Education	6		2			
N.H.W.		2	1	1		
Lodge	2			1		
Fur Garment	1	1		20		
Northward			1			
H.B. Co.	3			1		
N.T.C.	1					

A comparison of present employment with the data given by Abrahamsson in 1962 indicates that permanent employment has shown little or no growth with the exception of the Tuktoyaktuk Fur Garment Industry. Growth in employment is predicted by lack of ready economic opportunities and organized industries.

#### Local Employment - D.N.A. - Tuktoyaktuk 1965

On page 216 are the individual incomes realized from working for the Department of Northern Affairs and National Resources in 1965.

The income statistics indicate the limited amounts of income available through casual employment. Tuktoyaktuk suffers from an affliction common in the lower Mackenzie region, the availability of large numbers of unskilled labourers with limited opportunities for full time employment in the home settlement.

Casual employment, winter works and community development programs do not permit the individual and his family to exist comfortably for long periods. If the individual leaves the community for long periods in the summer, he may lose the opportunity to earn some sort of income. Also the rapid development of amenities in the communities and welfare at hand encourages attempts to make do on a narrow base of less than effective resource harvesting patterns close to the settlement supplemented by small amounts of wages.

#### Fur Garment Industries

The status of the fur garment industry will be examined in some detail in the chapter pertaining to handicrafts and fur garment industries. The incomes earned from the handicraft and fur garment industries amounted to \$28,087 in 1965. This was distributed in various amounts among nineteen women.

An estimated \$5,000 was obtained through sideline sales of items.

#### Income from Winter Works Programs

The total income from winter works programs amounted to in 1965.

#### Northward Agent

In Tuktoyaktuk, the Northward agent is a local Eskimo who handles ticketing and waybills. He meets incoming planes and oversees the unloading of cargo



and passengers. While the pay is not high, \$250 a month, the time requirements are not excessive in accordance with the weekly scheduling. This appears to be a satisfactory type of employment for a less active person.

#### Northern Transportation Company

After considerable agitation on the part of the Tuktoyaktuk Community Council, Northern Transportation Company agreed to use local Eskimos in 1965 and 1966 operations at Tuktoyaktuk. The Eskimos agreed to act in a self-disciplinary way in getting men to report to work on time and to reduce absenteeism.

In 1965 eleven men were employed on a seasonal basis. Each earned an estimated \$1,500 during the summer season. With two exceptions, the Eskimo labour force performed satisfactorily.

#### Yukon Construction

During the past two years Yukon Construction has provided limited amounts of employment to Tuktoyaktuk people. In 1966, three Eskimo men were employed during the summer period. ( 2 cat drivers, 1 truck driver)

#### DEW Line

A reduction in DEW Line activities since 1963 has decreased the amount of employment available to Tuktoyaktuk residents. In the summer of 1966 there were three families being employed, one at the local base and the other two families at more distant sites. A Tuktoyaktuk family left a DEW Line position on the Yukon Arctic coast in the summer of 1966 and went to Inuvik to seek employment.

#### Seasonal Employment on the DEW Line

In 1964, the DEW Line instituted a policy of employing local Eskimos on a seasonal basis rather than importing labour from the south. In 1965, Federal Electric Company employed eight temporary employees from Tuktoyaktuk. The men are used for summer maintenance programs and replace transient workers from southern Canada formerly employed for this purpose.

#### Employment with Solar Construction Ltd. 1966

In the summer of 1966, the construction of school gymnasium facilities at Tuktoyaktuk resulted in opportunities for employment for local residents.

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In 1965, 600 pounds of soapstone were brought into the community. Carving of reindeer antlers is also carried on by craftsmen in the community and sold through the Hudson's Bay Company.



Local Employment - D.N.A. - 1965

<u>No. of Employees</u>	<u>Total Income</u>
1	37.80
1	45.36
1	13.65
1	71.82
1	5.67
1	543.69
1	39.00
1	1,417.61
1	39.69
1	76.55
1	83.16
1	258.48
1	387.08
1	167.27
1	143.64
1	56.91
1	3,000.00
1	519.27
1	5,100.00
1	49.86
1	756.90
1	2,306.75
1	214.50
1	54.60
1	46.80
1	132.30
1	799.50
1	432.21
1	31.20
1	46.80
1	6,300.00
1	6,300.00
1	66.30
1	113.79
1	68.04
1	219.22
1	487.86
1	259.20
1	1,140.80 equipment operator (casual employment)
1	204.75
1	216.48
1	52.92
1	81.40
1	81.40
1	64.37
TOTAL 45	26,903.60

As can be seen by the statistics given above, the majority of incomes were small and obtained from casual labour opportunities which occur primarily in the summer.



Employment with Construction Companies

<u>No. Employed</u>	<u>Wage Rate</u>
7 men	\$1.75 an hour
4 women (1 cook, 3 helpers)	1.75 an hour (cook)
	1.70 an hour (helpers)

Local employment commenced on August 3 and continued through October 1966. Employment of this type is a strong incentive for men to remain in the community rather than going out on the land to put up supplies of dog food and be ready for the first "flush" of trapping.

Local Eskimos reported with some satisfaction that in at least two cases, construction companies had released transient workers and employed Eskimos.

Increasing interest on the part of oil companies in exploring offshore areas in the lower Mackenzie region will provide opportunities for Eskimos in casual employment with oil companies.

Log Salvage

This represents a minor source of income available to a few individuals who salvage logs suitable for construction and use as power poles. This is a part-time activity, and as such represents a minor source of income.

Sale of excess whale and fish at the local level also represents another minor form of income.

Social Assistance

In the outlying settlements in the lower Mackenzie region, individuals who rely on the returns from hunting, fishing and trapping as one of their major sources of income indicated their requirements for social assistance were seasonal and based on the cyclical fluctuations of the resource base. These seasonal requirements for social assistance are becoming less obvious as resident groups become more settlement based.

Seasonal availability of employment in the settlements has become a major factor in the need for social assistance.

Federal Social Assistance Expenditure Tuktoyaktuk

The following amounts of social assistance have been paid in Tuktoyaktuk since 1957-58.

<u>1957-58</u>	<u>58-59</u>	<u>59-60</u>	<u>60-61</u>	<u>61-62</u>	<u>62-63</u>	<u>63-64</u>	<u>64-65</u>
5,326	12,556	22,650	13,046	13,396	27,000	38,000	50,700

During the last three years, there has been a rapid increase in social assistance. This has been due to a number of factors. Growth in various sectors of the economy has not occurred. Construction projects and casual labour are unsatisfactory in creating economic stability. Interest in DEW Line employment has declined.

Territorial social assistance expenditures in Tuktoyaktuk are small. In 1964-65 for example one hundred and twenty-five dollars were expended on territorial social assistance. The population is predominantly Eskimo.



On a per capita basis, social assistance expenditures in 1964-65 amounted to approximately \$100.00.

Since Ferguson (1956-57) indicated the major income sources for Tuktoyaktuk there have been relatively minor changes. He gave the following breakdown in respect to income sources for 1956-57:

Trapping	11%
Steady Employment	28%
Casual Wages	32%
Family Allowances	17%
Pensions and Relief	5%
Country Food Sales	6%
Handicrafts	1%

In 1961-62, Abrahamson gave the following breakdown:

Trapping	8%
Permanent Employment	46%
Casual Employment	20%
Family Allowances	9%
Pensions	1%
Boarding Allowances	1%
Social Assistance	6%
Country Food Sales	4%
Handicrafts	3%
Equipment Hire	4%

Ferguson estimated a per capita income of \$295.00 or a total estimated income of \$100,300 for 340 people.

Abrahamson's survey was conducted at a period of peak DEW Line employment and hence indicates a high percentage contribution of "permanent" employment to the total income. Per capita income was estimated to be \$485.00.

#### Estimated Total Local Income - Tuktoyaktuk 1965

Trapping (1964-65 season)	\$14,745.85
Value Country Food (game meat only not including seal, whale fish)	5,000.00
Local Employment Dept. N. Affairs	26,903.60
Nursing Station, R.C.M.P.	9,980.00
Casual Labour - Construction firms, DEW Line etc.	28,500.00
Local contracts	455.00
Local Guiding	1,500.00
Winter Works Program	2,440.16
Fur Garment Industry	30,883.37
Handicrafts (est.)	5,000.00
Airlines Agent	3,000.00
Hudson's Bay Co.	4,220.00
Taxi (part-time)	800.00
Welfare	44,775.50
Treaty Monies	25.00
Family Allowances	21,760.00
Pensions	2,340.00
Total	\$202,328.48

This gives a per capita income of approximately \$510.35. As such it represents a slight increase in per capita income as estimated by Abrahamsson.



## FURS TRADED AT TUKTOYAKTUK

Species	1961 - 62		1962 - 63		1963 - 64		1964 - 65	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Bear, Polar	-	-	4	460.00	-	-	-	-
Bear, Black	-	-	-	-	-	-	-	-
Beaver	-	-	3	44.00	-	-	-	-
Fox, Blue	1	4.00	3	38.00	3	20.00	1	5.00
Fox, Cross	-	-	12	52.50	17	88.50	4	15.00
Fox, Red	2	7.00	24	159.23	56	348.00	4	15.50
Fox, Silver	-	-	2	11.00	2	9.00	-	-
Fox, White	653	6,955.00	528	7,920.23	722	13,699.50	124	1,385.50
Lynx	-	-	-	-	1	7.50	1	16.00
Marten	330	2,470.00	878	12,628.38	839	11,048.25	493	5,098.00
Mink	12	255.00	19	791.50	21	738.00	25	482.50
Muskrat	476	353.00	4,011	4,575.55	1,389	2,088.60	176	166.45
Squirrel	-	-	-	-	-	-	-	-
Weasel	37	24.00	229	191.82	24	181.20	158	103.70
Wolf	-	-	-	-	-	-	-	-
Wolverine	-	-	-	-	-	-	-	-
Seal	-	-	93	954.00	139	2,308.50	366	6,504.50
TOTALS		\$10,068.00		\$27,826.21		\$30,537.05		\$13,792.15



Welfare Payments - Tuktoyaktuk 1965Social Assistance

Other Welfare Programs No. of Cases Receiving* Assistance	No. of Cases Receiving Food Total Amount	No. of Cases Receiving Clothing Total Amount	No. of Cases Receiving Fuel Total Amount	No. of Cases Receiving Shelter Total Amount	No. of Cases Receiving Other Total Amount	No. of Cases Receiving Two Classes	No. of Cases Receiving Three Classes
Jan. 2	42	9	7	0	8	12	
Total \$ 43.25	\$1,968.25	\$ 422.61	\$ 75.00		\$ 284.30		
Feb. 8	33	10	13		15	9	
Total 467.95	1,598.50	490.41	78.00		476.37		
March 5	51	19	13	1	14	20	1
Total 113.35	2,756.50	1,042.72	90.00	7.50	486.41		
April 9	34	20	8	0	8	15	
Total 267.65	1,873.00	1,836.17	71.98		206.88	184.23	(2 pay
May 6	25	13	7		16	16	
Total 134.85	1,468.60	808.34	45.50		563.62		
June 8	40	18	7		23	16	1
Total 189.80	1,940.94	922.93	36.00		695.80		
July 3	40	5	9		19	10	
Total 272.65	1,946.00	287.58	71.25		465.32		
Aug. 5	39	18	13		15	22	
Total 313.20	2,021.40	1,181.90	117.75		292.21		
Sept. 5	17	7	5		6	5	
Total 186.00	885.50	436.30	39.50		236.31		
Oct. 3	30	22	7		17	10	1
Total 120.68	1,638.00	1,765.27	61.75		1,055.30		
Nov. 5	47	27	21	1	14	17	
Total 163.15	2,683.69	2,070.02	182.56	25.00	1,806.49		
Dec. 4	34	9	16	2	3	15	
Total 153.45	1,642.00	800.04	109.20	41.00	142.45		
2,425.98	22,421.78	12,064.29	978.49	73.50	6,711.46		

\* Includes Child Welfare, Special Care, Medical Social Services



## School

The current school statistics are outlined below:

<u>Eskimo</u>		<u>Indian</u>		<u>Other</u>		<u>Grade Dispersion</u>							
M	F	M	F	M	F	1	2	3	4	5	6	7	8
58	52	2		6	2	35	21	24	7	12	7	4	10

In 1964-65 there were five teachers, four of whom were elementary teachers with the fifth being a specialist in home economics.

Non lunches are provided for the children and a school bus service is in existence. The bus service consists of bombardier trips made about the settlement to collect and deliver children. In 1965-66, this service was operated on contract by a local Eskimo.

The school is modern and well-equipped with vocational and home economics training facilities.

Thirteen children attend school in Inuvik and live in hostels there. The attendance advanced grades in Inuvik.

A lack of local hostel facilities and the fact that the fur garment industry is a twelve-month operation results in women remaining in the community rather than going out on the land.

## Northern Health Services

Northern Health Services in the community consists of a four bed nursing station staffed by two nurses. The nursing station is centrally located in the community. Clinics are regularly held and periodic visits are made to the community by doctors and dentists from Inuvik. Emergency cases are evacuated by air from the community.

### Common Ailments Treated at Tuktoyaktuk \*

	<u>1964</u>		<u>1965</u>	
	<u>Native</u>	<u>Non-Native</u>	<u>Native</u>	<u>Non-Native</u>
Common Cold or Influenza	176	12	228	14
Bronchitis or Other Respiratory	35		64	7
Gastrointestinal	44	3	141	9
Ear, Nose and Throat	217		280	22
Malnutrition, Anaemia, Underweight	8		19	1
Dental Conditions	206	19	120	1
Gynaecological Conditions	10	1	57	11
Arthritis	12		30	
Skin Conditions	52		199	18

\* Source: Northern Health Service



Public health visits are made to the homes in the settlement by the nurses. This is an important function of nurses in the community.

### Returns of Inpatients Tuktoyaktuk Nursing Station

The following are the returns of the Tuktoyaktuk Nursing Station 1963 - 1965.

#### 1963

Number of admissions adult and children	44
Days of Care	103
Newborn	16
Days of care	39

#### 1964

Number of admissions adult and children	25
Days of care	72
Newborn	12
Days of care	39

#### 1965

Number of admissions adult and children	46
Total days of stay	95
Newborn	10
Total days of stay	40

### Tuktoyaktuk Community Council

In 1966, the Tuktoyaktuk Community Council consisted of five Eskimo members with leadership being shown by a local white-Eskimo and an energetic Eskimo entrepreneur and hunter-trapper. The local administrator acts as secretary for the council.

The council has shown a recent interest in handling welfare problems at the local level. This is an accepted practise in north Alaskan Eskimo villages where the Eskimo council deals with local welfare problems.

While not participating as council members, the local Roman Catholic priest and a private entrepreneur in the community exert some influence on the council.

Council meetings are held in the I.O.D.E. hall or in the school. A number of Tuktoyaktuk Eskimos have been employed for varying periods on the DEW Line where they developed value systems in dealing with other groups and organizations.

Utilization of community development and winter works funds have fostered a growth in community spirit. Also it appears that participation of non-residents has been a less inhibiting factor in development of the Community Council than elsewhere since non-residents have taken an advisory role rather than actively seeking positions on the council.

### Tourism

Non-residents have consistently proclaimed the potentials of Tuktoyaktuk for



development of a tourist industry. Reference has already been made to tourist developments in the form of accommodation and sport hunting of beluga and seal. The owner and manager of Polar Arc enterprises, the small tourist establishment reported that tourism was good during early part of July, but tapered off during the latter part of the summer. The accommodation and services apparently have been limited by a lack of capital for investment. Visitors to the community frequently seek other accommodation.

Winter works funds have been directed towards the development of curling facilities in a permafrost cellar being constructed in a pingo (ice mound) by Tuktoyaktuk residents. Eskimos involved in the project have expressed some pride in the development of this facility.

### Recreation

Organized forms of recreation consist of movies shown on a frequent basis by various organizations. The Community Council purchased a movie projector in 1966. Movies are shown in the cafe of Polar Arc Enterprises Ltd.

Local dances are organized by young Eskimos and held in the I.O.D.E. Community Hall or in the school. Curling is a regular feature of winter entertainment in the community.

Other types of less formally organized recreation consists of card playing and gambling.

Attempts to promote Eskimo drum dancing resulted in a dance festival being held at Tuktoyaktuk in September 1966 with participants from Inuvik and Aklavik.

### Religion

There are three religious organizations in the community. These are the Roman Catholic Church, the Anglican Mission and a Pentecostal Mission. The Pentecostal Mission is headed by a missionary and his wife from Alberta. While initial enthusiasm was shown for Pentecostalism, this appears to have subsided and local members of the sect feel that little progress is being made in the community although services are well attended.

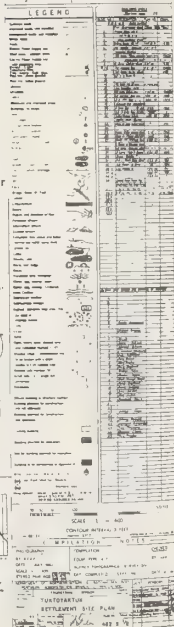
### Mail Service

In 1963, Abrahamson commented on the irregularity of mail service. This was greatly improved through mail being delivered on regularly scheduled flights of Northward Aviation to the community. Postal facilities are handled by the Hudson's Bay Company. Mail is normally delivered to the community two to three times weekly.

### The Hudson's Bay Company

The Hudson's Bay Company operates a modern self-service store facility at Tuktoyaktuk with a wide range of merchandise including fresh food. The store also contains the postal facilities for the community. While some competition is experienced in the form of Polar Arc Enterprises, this is overcome in large part by the larger stocks and range of merchandise. In terms of local expenditures, the lunch counter provides a more direct form of competition for local incomes.







### Furs Traded at Tuktoyaktuk

Two fur trading licences (H.B.Co., Polar Arc Enterprises) are held in the community. These are held by the Hudson's Bay Company and the owner-manager of Polar Arc Enterprises.

### Polar Arc Enterprises and The Igloo Inn Hotel

Polar Arc Enterprises and the Igloo Inn Hotel is a multi-faceted enterprise being operated by a young white entrepreneur married to a local Eskimo. This operation includes, general merchandising and fur trading, a lunch counter with juke boxes, magazine racks and handicraft displays, tourist accommodation, a theatre and boat rentals. No regular employment is available to local Eskimos although small amounts of casual employment are used in this multi-enterprise operation.

The present operation evolved from a partnership with Tuktoyaktuk Traders in 1963 which lasted until 1964 when the partnership was dissolved and the present operator continued as owner and manager.

The existing plant consist of a large two story frame building with living quarters above the lunch counter and theatre, a small quonset hut used for tourist accommodation and another small quonset building used as a retail store.

Due to its central location in the community, the lunch counter has become a gathering place for the resident Eskimo population.

The owner operator has expressed interest in an expansion of the tourist trade and the development of a road between Inuvik and Tuktoyaktuk. Lack of working capital appears to be the major factor and the operator has some difficulty in meeting creditor demands.

### Sales of Imported Foods - Tuktoyaktuk

The following are estimates of the quantities of imported food sold on an annual basis in Tuktoyaktuk. The majority of non-permanent whites use rations imported in bulk and are not important local consumers of imported foods available in stores.

<u>Commodity</u>	<u>Average Price</u>	<u>Quantity Sold</u>
Flour	3.30 (25 lbs.)	800 bags
	6.25 (50 lbs.)	375 bags
Baking Powder	.35 cents (8 oz.)	350
	.57 cents (16 oz.)	325
Jam	.75	900 tins
Powdered Milk	.25 cents/lb.	24,000 lbs.
Evaporated Milk	.25 cents a can	19,500
Condensed Milk	.49 cents	11,000
Tea Loose	1.39 lb.	300 lbs.
Boxed	.50	1,500 boxes
Coffee - ground	1.10	2,100 lbs.
instant	1.15	780 jars
Sugar	.16 cents a lb.	24,000 lbs.



Imported Fats

Butter	.87 cents a lb. can	3,000 lbs.
	.89 cents fresh	800 lbs.
Lard	.42 cents a lb.	200 lbs.
Bacon	1.30	900 lbs.

Imported Meats

Canned Meats	.55 cents a tin	8,100 tins
Frozen Meat - frozen	.55 cents	6,500 lbs.
Canned Fish	.66 cents	1,610 lbs.
Eggs	1.35 a doz.	2,200 doz.
Canned Fruits	.40 cents	15,800 cans
Canned Juices	.32 cents	11,350

Luxury Items

Tobacco	1.80 - $\frac{1}{2}$ lb. tin	1,100 tins
Cigarettes	.38 cents	12,000 pkgs.
Cigarettes	.48 cents	34,000 pkgs.
Soft Drinks	.25 cents a can	23,836 cans
Candies	Total expenditure all types \$1,500	

The largest retail distributor handled the following quantities of fresh fruit:

Fruit

Apples - 30 cases  
Pears - 10 cases  
Oranges - 20 cases

Vegetables

Onions - 1,200 lbs.  
Potatoes - 5,700 lbs.

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- (1) The term luxury item is used with some qualifications since tobacco and cigarettes are considered to be "necessities" and frequently take some precedence over other imported goods.



Clothing Sales Tuktoyaktuk 1965

<u>Men</u>			<u>Women</u>			<u>Children</u>		
Sports								
Shirts	45	\$ 5.95 ea.	Dresses	30	\$ 6.98 ea.	Pants	70	\$2.19 ea.
Work								
Shirts	35	6.95 "	Jackets	60	9.00	Pants	53	2.25
Work								
Shirts	20	2.29	Blouses	37	3.49	T. Shirts	170	.89
T Shirts	110	.98		28	6.50	Shirts	80	1.19
T Shirts	200	1.50		25	1.49	Overalls	70	1.98
Underwear	91	2.59	Slacks	100	6.98	Booties	58	.65
Arctic								
Jackets	3	35.00		90	3.25	Vests	160	.69
Summer	51	11.98	Shirts	200	4.50	Briefs	50	.49
	22	15.98	Bloomers	185	.69	Plastic		
						Pants	50	1.50
Parkas	2	49.50	Sweaters	40	6.95	Rubber		
						Boots	25	2.95
Pants			Gloves	210 pr.	1.00	Sneakers	40	.98
Drill	37	4.98	Rubber					
			Boots	85 pr.	3.98			
Cotton	52	5.98	Moccasin	30 pr.	2.98			
			Rubbers					
Cotton	39	7.50						
<u>Caps</u>								
Summer	78	1.19						
Ski Caps	50	1.98						
Ear								
Muffs	383	.98						
Rubber								
Boots	80 pr.	4.68						
<u>Blankets</u>								
Blankets	56	6.98 ea.						
Comforters	22	6.98						
Pillows	22	2.50						
Pillowslips								
	85	.49						
Cotton								
Prints	900 yds.	.54 - .75 yd.						
Grenfell	290	3.98 yd.						
Stroud	150 yds.	9.98 yd.						
Canvas	350 yds.	105 yd.						
Duffel	293	8.95 yd.						



Petroleum Products

In 1965 the following sales of petroleum products

	<u>Local Purchases</u>	<u>Price Per Gal.</u>
Automotive Gas	7,000 gal.	75 cents
Outboard Gas	2,000 gal.	75 cents
Kerosene	50 gal.	1.00 a gallon
Lubricating Oil	650 qts.	69 cents a quart

The large sales of automotive gas may be attributed to the number of skidoos, bombardiers and other types of vehicles including two small vans owned by Eskimos and others in the community. Automotive gas is also purchased by construction crews during the summers.

Winterized Forms of Transportation Owned by Local Residents Tuktoyaktuk

<u>Ethnic Status</u>	<u>Type of Vehicle</u>	<u>Year</u>
E	Bombardier Skidoo	1965
E	Bombardier Skidoo	1960
E	Snow Cruiser	1965
E	Bombardier Skidoo	1964
E	Bombardier Skidoo	1962
E	" "	1964
E	" "	1963
E	" "	1964
E	" "	1960
E	" "	1963
W/E	Autotoboggan	1964
E	Skidoo	1961
E	Bombardier Skidoo	1963
E	Snowmobile	1957
E	Snow Cruiser	1965
E	Snowmobile	1955
E	Bombardier	1956

Marine Equipment

There are three schooners in the community in addition to the usual types of small craft. These are used on whaling expeditions into Kugmallit Bay, for sealing expeditions to Herschel Island and on trips to Inuvik. Two of the schooners are old and relatively unseaworthy. These schooners are available at a daily rental of \$40 - \$50 per day. This is beyond the income of Eskimo residents who might otherwise charter the schooners for whaling trips and transportation to Inuvik during the summer.

Whaleboats and smaller craft rent at between \$20 - \$35 per day.

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\* The bombardiers were purchased from the DEW Line.

\* In addition skidoos and bombardiers are owned by government agencies, miss



## Housing

In 1957, the Central Mortgage and Housing Corporation, acting on behalf of the Department of Northern Affairs and National Resources, prepared proposals for moving the settlement of Tuktoyaktuk to a new site. The main reasons for contemplating a move arose out continuing erosion and the possibility of flooding of the headland and a lack of land for warehouses and transshipping facilities. The Northern Transportation Company developed facilities for its operation at the new site, but no population shift has occurred and further development of existing facilities at the settlement proper continue to take place. Community development plans are now being drawn up for the existing community.\*

### Housing in Tuktoyaktuk

Eskimo housing in Tuktoyaktuk ranges from log dwellings to substantial homes of prefabricated construction. There are requirements for improved housing arising out of overcrowding of existing buildings.

In 1966, seven pre-cut housing units were shipped to the community from Aklavik.

A general assessment of the housing conditions is contained in the tables given below.

The housing is well dispersed in the southern sector of the community. Since 1964 there have been attempts to institute community planning principles in the developments of roads and line up of housing to provide space and access.

Outliers of Eskimo housing exist in the northern sector of the community in the two mission compounds. During the spring break-up period the residents of Conn Island move to a sandpit in the northeast corner of the settlement where they reside in tents until the ice has cleared sufficiently for them to commute by boat. The Wolki family customarily camp here during the summer after having come into the settlement from Baillie Island.

The interiors of the houses were with few exceptions well-kept and clean. The majority of the houses contained a minimal amount of furniture.

In September 1966, no evidence was available in regard to stockpiling fuel wood.

The following is a sampling of the housing conditions in Tuktoyaktuk.

#### Number of housing Units and Occupants Surveyed

		Number of Units			Total Units	Total Occupants
		<u>Eskimo</u>	<u>Indian</u>	<u>Other</u>		
N	1	4	0	4	8	8
U	2	2	0	5	7	14
M	3	2	0	2	4	12
B	4	1	0	5	6	24
E	5	10	1	2	13	65
R	6	4	0	0	4	24
S	7	4	0	0	4	28
	8	8	0	0	8	64

\* Seven privately owned log houses are located on Conn Island east of the Hudson's Bay Company.



		Number of Units			Total Units	Total Occupants
		Eskimo	Indian	Other		
O	9	7	0	0	7	63
F	10	2	0	2	4	40
	11	3	0	0	3	33
O	12	3	0	0	3	36
C	13	2	0	0	2	26
C	*14 +	2	0	0	2	31
U	Totals	54	1	20	75	468
P						
A						
N						
T						
S						

### Size and Type of all Housing Surveyed

#### ETHNIC ORIGIN OF FAMILY

Houses	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
1 Room	27	179	0	0	1	1
1 Bedroom	13	103	0	0	4	15
2 Bedroom	13	109	1	5	7	26
3 Bedroom	1	2	0	0	8	28
TOTALS	54	393	1	5	20	70

### House Ownership of all Housing Surveyed

#### ETHNIC ORIGIN OF OCCUPANTS

	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants

#### OCCUPANT OWNED:

##### Financed By:

Private Means	39	284	1	5	4	25
Terr. Mortgage	0	0	0	0	0	0
C.M.H.C. Mortgage	0	0	0	0	0	0
Indian Affairs	0	0	0	0	0	0
Other	0	0	0	0	0	0

\* Included in the 14 + bracket is one house with 17 occupants.

Three single men who do not have any permanent abode are not included.

Total population surveyed 471



ETHNIC ORIGIN OF OCCUPANTS

	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
<u>Rented From:</u>						
*Federal Gov't.	11	82	0	0	11	31
Territorial Gov't.	0	0	0	0	0	0
Municipal Gov't.	0	0	0	0	0	0
Missions	2	11	0	0	3	7
Private Owner	0	0	0	0	0	0
Employer	2	16	0	0	2	7
TOTALS	54	393	1	5	20	70
Occupant owned	39	284	1	5	4	25
Rented	15	109	0	0	16	45
TOTALS	54	393	1	5	20	70

\* Includes 10 Welfare Government Houses which are not rented but provided on a need basis.

FAMILY INCOME OF OCCUPANTSETHNIC ORIGIN OF FAMILY

	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
Less than \$1,000	10	55	0	0	1	1
\$1,001 - 2,000	8	59	0	0	0	0
2,001 - 3,000	7	46	1	5	0	0
3,001 - 4,000	16	112	0	0	1	2 +
4,001 - 5,000	5	43	0	0	4	25 +
5,001 and over	8	78	0	0	13	41
TOTALS	54	393	1	5	19	69

EMPLOYMENT OF FAMILY HEADSETHNIC ORIGIN OF FAMILY

	Eskimo		Indian		Other	
	Units	Occupants	Units	Occupants	Units	Occupants
Federal Gov't.	21	174	0	0	11	31 +
Territorial Gov't.	0	0	0	0	0	0
Self-Employed	0	0	0	0	1	4
Private Enterprise	2	16	0	0	3	17 +
Religious Orders	0	0	0	0	3	?
Casual Employment	28	192	1	5	1	10
Pensions	3	11	0	0	1	1
TOTALS	54	393	1	5	20	70

\* includes 2 housing units with 2 occupants in each earning the income shown.  
The total shown for income does not include 1 R.C. Father.



HOUSING FACILITIES

	<u>Gov't. Housing</u>	<u>Private Housing</u>	<u>% of Total Houses</u>
<u>A. Water and Sewer</u>			
<u>Water Source</u>			
Housing with delivered supply	15	11	34.7%
Housing with piped in supply	0	0	0.0%
River, ice, water points	7	42	65.3%
<u>Sewage Disposal</u>			
Housing with piped out disposal	0	0	0.0%
Housing with tank pump out	3	0	4.0%
Housing with casual disposal (ground)	10	52	82.7%
Housing with pail pick-up	9	1	13.3%
<u>Toilet Facilities</u>			
Housing with flush type toilets	8	0	10.7%
Housing with chemical toilets	12	23	46.7%
Housing with other facilities	2	30	42.6%
<u>B. Heating, Cooking and Lighting</u>			
<u>Heating</u>			
Housing with oil furnaces or boilers	11	3	18.7%
Housing with wood furnaces	0	0	0.0%
Housing with oil heaters	11	16	36.0%
Housing with wood heaters	0	34	45.3%
<u>Cooking</u>			
Housing with electric ranges	1	0	1.3%
Housing with oil ranges	21	16	49.3%
Housing with propane ranges	0	0	0.0%
Housing with wood ranges	0	21	28.0%
Housing with other facilities (primus)	0	16	21.4%
<u>Lighting</u>			
Housing with electric lighting	11	8	25.3%
Housing with kerosene lamps	11	45	74.7%
Housing with candles	0	0	0.0%

COMPARISON WITH CANADIAN HOUSING BY PER CENT OF TOTAL HOUSING

	<u>Running Water</u>	<u>Indoor Toilet</u>	<u>Electricity</u>
Canadian Housing	92%	90%	99%
Tuktoyaktuk:			
Government controlled	41%	36%	50%
Privately owned	0%	0%	15%



### Tuktoyaktuk

The major problem in Tuktoyaktuk is in increasing the availability of employment in terms of available manpower resources. The large single population poses a strain on the community both in respect to employment and housing.

As educational, health and housing facilities are brought up to standard, construction projects inevitably diminish. Winter works and community development programs inject limited amounts of money into the local economy.

As local administrators have repeatedly pointed out, increased employment of Eskimos by the Northern Transportation Company would solve seasonal employment problems in the summer. Increasing and promoting labour mobility through retraining can only become effective if the employment problems of a number of small communities like Tuktoyaktuk in the N.W.T. are assessed in terms of providing labour for mining and other communities with more viable economies. The experimental manpower survey recently carried out in the Great Slave Lake area by the Department of Indian Affairs and the Dominion Bureau of Statistics will provide a basis for meeting employment problems in the Northwest Territories.

There appears to be a market for increased fur garment production. The establishment of a day nursey for under school age children would release women to this industry and would assist women already engaged in the industry.

The inadequacy of tourist accommodation could be overcome through the establishment of an Eskimo Co-operative and the provision of development funds through loans.

On the basis of income earned in the Fort McPherson area through employment with oil exploration companies, this should become a source of revenue in the near future.

The development of a cannery project, while providing a form of seasonal income would increase the returns from the resource base, and could be an important factor in continued and expanded resource utilization on a regional basis.



## CASUAL LABOUR, WINTER WORKS, CONTRACTING AND SMALL BUSINESSES

### Casual Labour

Casual labour is a term generally applied to unskilled labour employed, for varying lengths of time, on a non-permanent basis. Unskilled labour has been extensively used in various projects in the major settlements of the lower Mackenzie region.

The sources of casual labour are residents of the various settlements, who for lack of training, or other reasons, are not permanently employed, hunters and trappers who want only part-time employment and occasionally transients.

As might be expected, there are large resources of man power in the region but lacking in the necessary qualifications for permanent employment. Until recent years, little emphasis was placed on equipping local populations for wage employment, since trapping was the major source of income and opportunities for wage employment were limited in the settlements. The survey in 1966, revealed that with minor exceptions, the majority of the local Indian and Eskimo adult population had extremely limited schooling with only emphasis on the three R's.

An analysis of the group employed in casual labour in the settlements in 1965-66, indicated a wide range of ages, with a larger proportion of unskilled workers being drawn from the middle to older age groups. This partially reflects the lingering, permissive attitudes shown in traditional societies towards young adults, who are not expected to fully support themselves but may remain under the parental roof for long periods as a economic burden to their parents. Numbers of young adults prefer odd jobs, or "status" jobs, (truck driving), to the hard labour involved in casual employment.

### Sources of Employment for Casual Labourers

A number of agencies offer casual employment opportunities in the region, particularly during the late spring and summer seasons.

Employment opportunities with government agencies varies, with the Department of Indian Affairs and Northern Development being the major source of employment opportunities. The Department of Public Works provides opportunities for employment indirectly through construction contracts, as well as employing local labour in maintenance projects at Inuvik.

The Northern Canada Power Commission with stations at Inuvik, Aklavik and Fort McPherson, employs substantial numbers of men in seasonal projects involving outside maintenance. At Inuvik, the number of casual labourers during the summers, varies from twenty to sixty men.

Firms such as Yukon Construction Ltd., and Solar Construction, recruit local labour, but import skilled workers from outside the region. Some local labourers feel this is a discriminating policy.

### Local Attitudes Towards Casual Employment

Local residents place some degree of dependence on casual labour opportunities and there is an intra-regional movement of workers in



response to employment opportunities. Government and private summer construction projects at Inuvik, attract workers from Aklavik, Fort McPherson and Arctic Red River. This, of course, depends on the availability of employment in the settlements, as the majority of workers naturally prefer to work in their own settlements. The turnover rate at Inuvik is high and workers frequently change jobs for a variety of reasons.

One government agency reported having employed one hundred and twenty men during the past three years, all of whom left their jobs without completing them.

#### Voluntary Unemployment (1)

Little or no evidence was obtained in the course of the survey, to indicate that voluntary unemployment exists to any degree in the lower Mackenzie region. There are a few individuals in the various settlements, who may be classed as voluntarily unemployed, but these represent less than one per cent of the existing labour force. Such persons are also usually failures in the subsistence economy.

The major problem in regard to employment, lies in the fact, that the bulk of the labour force occupies the unskilled category in the hierarchy of non-competing groups. There is little, or no potential, for many in the unskilled labour group to move into the semi-skilled category, due to age and extensive requirements for training. Indeed, many of the unskilled labourers function fairly well in a category where limited demands are placed on them, and they can combine returns from casual labour with returns from the subsistence economy.

The existing education systems are steadily being expanded, to equip the younger age groups for permanent employment in the higher categories of the non-competing labour groups.

#### Numbers Employed on a Casual Labour Basis in various Settlements, 1965

Some figures are available to indicate the number of persons employed in casual labour in the lower Mackenzie region in 1965.

#### Numbers of Casual Employees employed on a monthly basis - D.N.A., 1965

	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.
Aklavik	5	2	17	14	7	22	28	18	26	16	11	5
Inuvik	11	25	38	16	21	56	46	52	39	32	26	15
Tuktoyaktuk	1	17	17	15	1	10	10	16	5	3	3	1
Fort McPherson	6	3	23	5	7	12	8	11	7	6	6	4
Arctic Red		7		1			2	1	1	1	2	3

(1) This term is here not employed with its technical meaning in economics, where it includes unemployment due to unwillingness to accept downward flexibility of wage rates or the necessity of spatial or occupational mobility. These criteria have been excluded in the present context.



A seasonal variation is indicated, with the summer season being the most active one, in line with increased needs for labour in local construction projects undertaken during optimum climatic conditions.

The numbers given for one month, include workers employed during the previous month and workers hired during the current month. For example, a person may work for a short term period or a number of months, depending on a number of factors, the major one being the availability of employment.

Active trappers use casual employment as a means of grubstaking, using their earnings for food and equipment and aircraft charters. Others, who reside in the settlements on a more permanent basis, wait for winter work projects. For this group an employment gap occurs in the autumn and the spring. Many try to overcome this with odd jobs. This gives a certain air of instability to part-time employment.

#### Standard Casual Labour Rates

Casual labour rates in the region have recently ranged between \$1.75 to \$2.05 per hour. Foremen receive an additional ten cents an hour above the maximum rate. Vocational trainees and apprentices receive basic rates, ranging between \$1.75 and \$1.85 an hour, in skilled-job training programs. Workers in small local projects, such as the tanning project, receive a basic weekly training allowance of \$35.00.

#### Variability in the Amounts of Time Spent in Casual Employment

Examples are available, which indicate the extreme range in amounts of time spent in casual employment in the settlements during 1965.

#### Labour Force - Department of Northern Affairs, 1965

<u>Period Employed</u>	<u>Aklavik</u>	<u>Tuktoyaktuk</u>	<u>Arctic Red</u>	<u>Fort McPherson</u>
1 month or less	21	19	4	21
2 months	14	13	2	12
3 - 4 months	12	10	3	6
5 - 6 months	12	4	1	
over 6 months	8	2		2

Substantial numbers of people worked less than four months. The major reason for the limited amounts of work time being recorded for a large number of workers is the short-term nature of many of the work projects.

There is some indication that persons engaged in the subsistence economies during the summer, are increasingly reluctant to leave the settlements, if there are opportunities for work. They remain, instead, in the settlements until their earnings are dissipated, before returning to the subsistence economy.



Many native residents are unwilling to act in a supervisory capacity. Native labour foremen enjoy only minor increases in pay and these increases appear to be an insufficient inducement to assume supervisory positions with some responsibility. Also, the mixed ethnic composition of casual labour crews appears to be a deterrent.

### Winter Works' Programs

Financial allotments are provided to the settlements from Federal and Territorial funds for use in winter works' programs. These programs are a source of employment to individuals without any other means of income. In effect, the winter works' programs replace, to some extent, the casual labour opportunities available at other seasons.

In the lower Mackenzie region, a wide variety of winter works' programs have been carried out, ranging from the construction of permafrost cellars at Tuktoyaktuk, to road clearance in Fort McPherson. At Inuvik, winter works' projects have included the clearance of picnic sites, garden land and small bridge building projects. (1)

There appears to be some validity to work projects, which are adequately supervised, teaching elements of team work at the local level and incorporating skills beyond those practised in the subsistence economy.

The earnings of various individuals have been small through the necessity of spreading income among large numbers of people.

### Winter Works - Fort McPherson

In January 1966, two types of winter works' programs were available to the people of Fort McPherson. These programs involved a local settlement project of sidewalk construction, and an out-of-settlement project of road clearance, between Fort McPherson and Arctic Red River.

Sidewalk construction consisted of building fourteen-foot sections of wooden sidewalks for use in the settlement. Road construction consisted of brush clearance and involved work away from the settlements. Individuals involved in road construction used their own dog teams for transportation and for hauling brush and logs from the road. They were paid \$5.00 per day for the use of dog teams in road clearance.

### Sidewalk Construction (2)

<u>No. of Men Employed</u>	<u>Total Number of Hours</u>	<u>Total Income</u>
23	710	\$1,291.51

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(1) At Inuvik, winter works' programs are operated on a Territorial allotment basis. Elsewhere, programs are jointly supported by Federal and Territorial grants.

(2) The difference in expenditures between program allotments, and expenditures can be explained in terms of local flexibility in programming and expenditures.



<u>Road Construction</u> <u>No. of Men Employed</u>	<u>Total Number of Hours</u>	<u>Total Income</u>
19	1,020	\$2,500.85 direct labour 500.00 use of dog teams
		\$3,000.85

These winter works' programs came during a period of minimal activity, both in the settlements and on the land. Trapping and hunting activities decline during the mid-winter period of severe cold and reduced daylight.

The examples given above are typical of winter works' projects using large numbers of men for limited periods.

The economic validity of road construction, between Fort McPherson and Arctic Red River, is open to question, since neither is an important supply center for the other. The existence of a trail does somewhat reduce the time taken during the winter in travelling between the communities.

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#### Winter Works' Programs - Lower Mackenzie Region, 1965

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<u>Settlement</u>	<u>Purpose</u>	<u>Period</u>	<u>Allotment</u>	<u>Man Days</u>	<u>No. of Men</u>
Inuvik	Procurement	Jan. 1	\$1,761.66	119	4
	Corduroy for road building	April 30			
Inuvik	Prefabrication	" "	1,965.43	128	6
	Sidewalks				
Inuvik	Build Water Pt.	" "	1,958.65	131	7
	Tent Town				
Inuvik	Build playground	" "	506.55	33	3
	Benches				
Aklavik	Prefabricated sidewalks		3,651.00	240	10
Aklavik	Procure Corduroy		2,199.00	145	10
Tuktoyaktuk	Dig Ice Cellar		2,440.16	160	27
Fort McPherson	Road Clearance		5,193.21	125	6
and	between Fort McPherson			100	5
Arctic Red River	and Arctic Red River				



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Winter Works' Programs - Lower Mackenzie Region - 1966

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<u>Settlement</u>	<u>Purpose</u>	<u>Period</u>	<u>Allotment</u>	<u>Man Days</u>	<u>No. of Men</u>
Inuvik	Ski Trails	Jan. 15	\$388.23	23	6
		April 15			
Inuvik	Tent Platforms	Jan. 1 - 15	1,080.85	67½	8
Inuvik	Fabrication		3,972.10	248	6
	Sidewalks				
Aklavik	Fabrication	Feb. 1	2,198.46	137½	10
	Sidewalks	Mar. 31			
Aklavik	Clearing brush	Feb. 1 - 23	3,306.41	206½	8
Tuktoyaktuk	Ice pit construction	Jan. 15	2,275.59	142	6
		Mar. 31			
Tuktoyaktuk		Feb. - March 15	4,692.14	167	11
Fort McPherson	Cutting logs		1,499.70	94	6
Fort McPherson	Cut logs	Feb. 1 - Mar. 24	1,534.22	98	6
Fort McPherson	Winter Road	Feb. 1 - March 31	2,000.00	125	8
Fort McPherson	Prefabrication Sidewalks	Jan. 15 - Feb. 15	1,802.72	113	9
Arctic Red	Brush Clearance	Feb. 1 - April 7	1,499.70	94	6
Arctic Red	Winter Road	Feb. 1 - 15	1,997.87	125	8



### DEW Line Employment

The DEW Line consists of a number of radar bases, strategically placed on an east-west basis, across the Canadian Arctic and Alaska.

Substantial numbers of Eskimos have been attracted to DEW Line employment, which commenced with a construction phase during the mid-fifties. (1) A number of residents from the Inuvik region attended the Leduc training courses, (heavy equipment operators course), provided by the Department of Northern Affairs and National Resources, in 1959-60, to equip Eskimos for employment at DEW Line sites in the Canadian Arctic.

Eskimos, (and Indians), employed on the DEW Line receive salaries ranging from \$200 to \$450 per month, also rations and rental housing to accommodate themselves and their families. Duties range from providing unskilled labour services to the operation of heavy equipment. Provisions exist for annual leave.

Eskimos, (and Indians), from the Inuvik region, have been employed at locations as far eastward as Cape Dyer on Baffin Island. During the peak period of DEW Line operation, semi-permanent employment opportunities in DEW Line work, in the Inuvik region, totalled ten, and were distributed among various sites in the region.

A majority of the permanently employed Eskimos in the 25-45 year age groups in the Inuvik region have been employed for varying lengths of time on the DEW Line. At the present time DEW Line employment

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(1) Smaller numbers of Indians and Metis have worked on the DEW Line due to a number of factors. Eskimos were promoted by some administrators as being most suitable for employment in Arctic locations. Also, the Eskimo employment plan was established specifically for Eskimos. In 1966, one Indian from Fort McPherson was reported working in DEW Line employment.



no longer constitutes an important employment factor within the region, although opportunities still exist in reduced numbers.

The peak period of DEW Line employment occurred from 1959-63. In April 1963, there were 28 Eskimos, six Indians and four Metis from the lower Mackenzie region, employed on the DEW Line. During the period there were six radar bases in the lower Mackenzie region. In 1963, the less important auxiliary sites were phased out and the small numbers of Eskimo, or other indigenous employees, were transferred to other sites, (or released from employment).

The effects of DEW Line employment have not been accurately assessed from an economical or sociological standpoint. There were benefits in the form of on-the-job training and improved housing. Many Eskimos became increasingly aware of the benefits resulting from permanent employment. In many respects, DEW Line employment conditioned local populations to think of wage employment in terms of not only income, but of subsidiary benefits such as housing, annual leave, etc.

A number of Eskimos accumulated savings in DEW Line employment through banking systems established for them.

Both the DEW Line and the construction of Inuvik in the 1950's, may be considered as major factors in the centralization of the population. The DEW Line indirectly demonstrated the benefits of seeking permanent wage employment in the settlements, good housing and the possibility of maintaining a link with the subsistence economy through annual leave.

Those who were most successful on the DEW Line have adapted successfully to wage employment. Less successful DEW Line employees are to be found in the settlements working at casual labour or odd jobs.

### Contracting

The increase in government activities in the lower Mackenzie region has been an incentive to local people to engage in contracting on a small scale. The field is occupied predominantly by local whites, although a Metis is a successful contractor in Aklavik, and Indians and Eskimos carry out small contracts elsewhere.

Government contracts for road work, cartage, supplying ice, hauling sewage etc. are important sources of income. The small contractors use a wide variety of equipment, which they maintain themselves. The equipment is second or third-hand and either secured from the south by barge, or secured through Government disposal agencies from abandoned radar sites, or on settlement sites through the region.

The government agencies are impartial in their dealings with contractors in the settlements. The frequent use of make-shift equipment and delays in completing contracts are accepted as part of the difficulty of completing engineering projects in the north. Contractors occasionally share on contracts or loan each other equipment.



Local contractors at the smaller settlements, usually attempt to carry out contracts themselves. They use small amounts of local labour at wages slightly below those offered by the government, although one contractor at Fort McPherson matches government rates for local labour.

Lack of equipment and capital and the necessary rudiments of business training and organizational ability, preclude local Indians and Eskimos from engaging in the lucrative business of local contracting.

An economic boom was experienced by contractors in Inuvik in 1965-66, through large contracts being available to meet local fill and other gravel requirements.

In Inuvik the contracting situation is somewhat different than in the smaller settlements. Here competition is greater, not only between local contractors, but also from contractors who send crews and equipment from Alberta into the territories, moving from settlement to settlement.

Inuvik's larger scale of contracts also results in greater amounts of local employment as well as employment for transient labour. During the summer of 1966, an estimated fifteen transients found employment as equipment operators and truck drivers in Inuvik. Their ability to stay on the job and their regularity of work performance made them active competitors with local labour.

In Fort McPherson, the two independent store operators engage in a variety of activities to supplement returns from handling general merchandise and furs. One store owner operates a cafe and movie theater, as well as being a general contractor. The other store operator is an airlines agent and general contractor. Both compete with a local whites engaged exclusively in general contracting. Two Indians have half-ton trucks and engage in hauling contracts. In 1965, an estimated \$24,136.25 was available in twenty-two contracts of varying types.

A different situation prevails at Aklavik, where contracting is sufficiently lucrative to enable three operators to engage in contracting on a substantial scale. These consist of two local whites and a Metis. One other operator, a local white, engages in part-time employment.

Competition for contracting at Tuktoyaktuk takes the form of competition between a local white store-operator and Eskimos. Both have minimal equipment. Large contracts are handled by the Federal Electric Company or construction firms engaged in other work. An estimated \$9,839.50 was available to contractors in Tuktoyaktuk in 1965. Four contracts to a value of \$455.00 were completed exclusively by Eskimos.

In Inuvik there is some competition among local entrepreneurs to provide local services. These are controlled largely by resident and recently immigrated whites. Such services as window washing, janitorial services, etc. are predominantly white controlled. This stems largely from regularity of performance, the maintenance of



adequate equipment. No native entrepreneurs have arisen in this respect.

Minor activities, such as the provision of pilings and boat rentals are undertaken by both local whites and native residents. Here again local whites rival local natives with a better record of reliability.

Small amounts of income are realized through providing services to the local population. At Fort McPherson for example, a local contractor has undertaken to haul wood and move families and their belonging, between the beach area and the settlement, a distance of three-quarters of a mile.

### Source of Equipment

Much of the equipment owned by contractors has been secured in the region through Crown Assets Disposal. Equipment was hauled into the settlement by barge from abandoned radar sites in coastal areas during 1964-65. Old equipment is also secured through Crown Assets disposal from government agencies in the settlements. Cheap water transportation permits the importation of equipment from Alberta and up-river settlements on the Mackenzie.

### Business

The development of secondary industries is minor in the lower Mackenzie region. This is due to a number of factors, the major one being the lack of demand, resulting from a small population, and a lack of local capital and purchasing power.

There is considerable competition among white entrepreneurs in the field of service industries, particularly freighting. Examples of this are readily available in Inuvik where seven operators are engaged in freighting activities. The major reason for this appears to be the small financial outlay needed in purchasing and maintaining equipment, and the service contracts available from government agencies.

No intra-regional distribution forms of secondary industries have evolved with minor exceptions, (banking and the bakery).

In tertiary activities, opportunities for expansion are limited at all settlements in the region. At Fort McPherson, two entrepreneurs engaged in the general merchandising field, supplement these activities with other forms of income (i.e. contracting, airlines agent, theatre, and cafe operations).

Participation of local residents in secondary and tertiary entrepreneurial industries, is limited, for reasons of limited capital and a lack of skills. Two Eskimos are engaged part-time in service industries, (taxi and freighting), in Tuktoyaktuk. One Indian operates a barbershop at Inuvik on a part-time basis. Both require limited capital. The Eskimos are putting to use skills learned on the DEW Line, while the Indian learned barbering as part of a rehabilitation project.



Types of Contracts Available, 1965-66

<u>Inuvik</u>	<u>Aklavik</u>	<u>Fort McPherson</u>	<u>Tuktoyaktuk</u>
- Water Delivery	- Dismantling Bldgs.	- Road Maintenance	- Supplying Logs and Moss for ice cellar
- Provision Piles, Power Poles	- Floor Repairs	- Freight Hauling	- Bombardier rental
- Painting	- Electrical Work	- Garbage Pick-up	- Steno
- Bombardier Repair	- Water Hauling	- Supply and Delivery Piling	- Gravel Haul
- Moving Sawmill Engines Aklavik to Inuvik	- Lot Clearance	- Supply Gravel	- Cat and Scraper
- Taxi Service Government Personnel Window Washing	- Teaching Contract	- Stripping, Treating Piles	-
	- Gravel Spreading	- Piling Contract	
- Flooring and Repair of Floors Gravel Hauls	- Autotoboggan Rental	- Logging	
- Heavy Sleigh Rentals Assortment of Contracts for Teachers and Stenos	- Packing Goods	- Cutting and Delivery Firewood	
		- Chain Saw Rental	
		- Rental Bulldozer	
		- Truck Rentals	
		- Snow Removal	
		- Teaching, Steno work	



Indians and Eskimos have operated small cafes for varying periods, but these have failed for various reasons, the chief ones being a lack of training in entrepreneurial skills and a lack of capital.

### Distribution of Business Licences (1)

<u>Type</u>	<u>Locality</u>	<u>Ethnic Status Operator</u>
<u>Secondary</u>		
Construction	Inuvik	White (a)
Manufacturing		
Bakery	Inuvik	White (b)

### Distribution of Business Licences

<u>Type</u>	<u>Locality</u>	<u>Ethnic Status Operator</u>
<u>Service Industry</u>		
Freighting	Inuvik	White (c)
		White
		White
		White
		White
		White
		White
	Aklavik	Metis
		White
	Fort McPherson	Indian
Laundry	Tuktoyaktuk	White
		White
		White
		White
		White
		White
		White
Finance	Inuvik	Eskimo (d)
Mutual Fund	Inuvik	White
Banking	Inuvik	White (b)
		White
Hotels	Inuvik	
Beauty Salon	Inuvik	

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(1) The ethnic status of the licence holder is designated to show the participation in business activities of various groups in the lower Mackenzie area.



Distribution of Business Licences

<u>Type</u>	<u>Locality</u>	<u>Ethnic Status Operator</u>
<u>Service Industry</u>		
Barber Shop	Inuvik	White Indian (part time)
Restaurants	Inuvik	White (b)
Cafes		White
	Fort McPherson	White
	Aklavik	White
	Tuktoyaktuk	White
Taxi Businesses	Inuvik	White (c)
	Inuvik	White
	Tuktoyaktuk	Eskimo
	Tuktoyaktuk	Eskimo (d)
Car Rental	Inuvik	Eskimo
Gift Shop	Inuvik	White
Service Station	Inuvik	White (b)
	Inuvik	White
Theatre	Tuktoyaktuk	White
	Fort McPherson	White
	Aklavik	White
<u>Tertiary</u>		
Retail Trade General Merchandising	Inuvik	White (e)
	Inuvik	White
	Aklavik	White
	Aklavik	White
	Fort McPherson	White (e)
		White
		White
	Arctic Red	White (e)
	Tuktoyaktuk	White (e)
		White
	Reindeer Station	White (e)
Booksales	Inuvik	White
		White
Newspaper	Inuvik	White
Building Supplies	Inuvik	White (a)



Distribution of Business Licences

<u>Type</u>	<u>Locality</u>	<u>Ethnic Status Operator</u>
Contracting	Inuvik	White (a) White White
	Aklavik	White
	Fort McPherson	White
	Tuktoyaktuk	

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Letters in brackets indicate various types of business controlled by one person or one organization. In the case of a major retail organization (e) licences are maintained for establishments in each settlement. In Inuvik a development corporation holds four business licences.



### The Small Trader

The small trader has almost completely disappeared in the region. This has been due to a number of factors. A major factor has been the decline in fur production, and the increasing competition for local incomes from large store operators with extensive merchandise lines. There is evidence to support the fact that small store operators now compete with the Hudson's Bay Company by staying open for longer hours and knowing when and when not to advance credit through long established relationships with local residents. They also cater to local tastes by handling local foods. For example, Semmler's Store at Inuvik, stays open in the evenings and on weekends.

### Current Methods of Financing Business Ventures

The current methods of financing business ventures are through bank loans, secured at the local level, or in southern Canada and through the Industrial Bank. A branch of the Industrial Development Bank is located in Edmonton and representatives make periodic visits to Inuvik.

Local entrepreneurs complain about the difficulty of securing investment capital. (1)

Various forms of assistance have been available to Eskimos and Indians. Reference has been made to these in other parts of the report. In general, local people do not represent a good loan risk.

### Loans Granted from Eskimo Loan Fund - Lower Mackenzie Region

Since 1954, a total of twenty-eight loans amounting to \$101,040, have been granted in the region. Four loans were made to Aklavik Eskimos, nine loans to Tuktoyaktuk residents and a total of fourteen loans in Inuvik. The largest single loan was for \$20,000, made in 1963 to the Aklavik Fur Garment Co-operative.

It is interesting to note the reasons for requesting loans. Those made in Aklavik 1954, and Tuktoyaktuk 1964, were for trapping equipment and aircraft charters. Loans at Inuvik in 1963 were individual loans, amounting to \$7,000 each, for the purchase of houses. (Innuvit Co-operative)

One loan involved the purchase of a boat, under the small boats assistance plans, to be used in subsistence activities. Another loan was made in 1956, to a Tuktoyaktuk resident, to purchase a bombardier for use on a commercial basis.

Repayment of the loans has been a slow process, arising partly from lack of funds and partly out of an "apparent" reluctance to repay government loans. The limited assets of many of the loan holders inhibit easy collection of loans. Immediate needs by necessity require prior attention. Also the government has been ambiguous in its loan policy.

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(1) Despite this, some very large loans have been issued to Inuvik entrepreneurs by the Industrial Development Bank.



## V TRANSPORTATION AND COMMUNICATION

### Water Transportation

In the historical section of the report, the gradual growth of water transportation was briefly described. During the twenties and thirties, the growth of prospecting and the development of mines, in the southern part of the Mackenzie District, gave an impetus to water transportation and general improvements in the Mackenzie water-way and the transportation system.

An additional impetus in water transportation on the lower Mackenzie, occurred when the Hudson's Bay Company ceased its shipping operations in 1933 by the Pacific, to re-supply Arctic posts east of the Delta as far as Coronation Gulf. The Pacific route was abandoned by the Hudson's Bay Company following the loss of the vessels Lady Kindersley and Baychimo, in the Arctic ice Pack. Herschel Island was replaced by Tuktoyaktuk after 1933 as a supply staging center. It is interesting to note that freight for Colville River in Alaska, was transported in 1963, via the Mackenzie River rather than by Point Barrow. In 1966, diesel and heating oil were transported by barge to Barter Island and Point Barrow from Inuvik by an American firm having a supply contract with the United States bureau of Indian Affairs.

### Northern Transportation Company

Following a decline in traffic on the Mackenzie during the thirties, the Northern Transportation Company gradually assumed importance as a freight carrier on the Mackenzie River. Its major southern depot was at Waterways, Alberta.

The company extended its operations into the western Arctic for the first time in 1949, when it was requested by the R.C.A.F., to operate the supply ship, Snowbird, between Tuktoyaktuk and Cambridge Bay. Subsequently, the "Radium Dew" and three steel barges, were built for delivery of construction materials and equipment for six DEW Line installations in the Mackenzie Delta, beginning in 1955. Three years later the company began re-supply of twenty-five DEW Line sites along the Arctic Coast, operating LST'S and tankers, made available under a loan agreement between the United States and Canadian Governments.

### Major Transportation Co. on the Lower Mackenzie River and Western Arctic Waters

The Northern Transportation Company took over Arctic freight service in 1963 from the Hudson's Bay Company at its request, and acquired the motor vessel "Banksland". A 229 foot motor vessel, "Frank Broderick", was built at the Yarrow Shipyards in Esquimalt, B.C., and began service in Arctic waters in July 1965. The "Frank Broderick" has a cargo capacity of 1,000 tons, and can tow barges with freight when necessary.

Early in 1965, the Northern Transportation Company Ltd., acquired Yellowknife Transportation Co. Ltd., which had carried on a somewhat parallel service.



Transportation

The lower Mackenzie region is connected to southern Canada by the Mackenzie River system, and a road system between Hay River and Edmonton.

Edmonton is the closest commercial and industrial center for the lower Mackenzie region in terms of established transportation systems. It is a staging center for shipping goods by truck to Hay River where it is loaded on barges for down river transportation. The distance between Edmonton and Hay River is 700 miles.

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Trucking Rates 1966 ★

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Edmonton toHay River - cwt. basis

Class	1-50	1	2	3	4	5
	\$2.25	\$4.22	\$3.63	\$3.21	\$2.52	\$2.15

Yellowknife

\$3.50	\$6.03	\$5.11	\$4.24	\$3.55	\$3.00
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Truckload Rates 1966

10,000 lbs.	20,000 lbs.	30,000 lbs.
\$2.15 cwt.	\$2.00 cwt.	\$1.70 cwt.

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★ Source - Trucking Companies

There are three principal trucking firms operating between Edmonton and Hay River, with equipment capable of carrying a wide variety of freight, ranging from building materials to fresh and frozen foods.



Special commodity rates are shown to give some idea of the costs entailed in having goods shipped into the lower Mackenzie River. A number of residents in Inuvik import their fresh food by truck and water transportation during the summer, and store it in freezers or heated storage. Foods transported by water are carried under the class 5 rate system from Hay River to Inuvik, and other settlements in the lower Mackenzie delta area. The cost of bringing fresh food by road and water transportation to Inuvik ranges between nine and ten cents a pound.

Special Commodity Rates by Truck from Edmonton to Hay River 1966 \*

Vegetables - fresh or green	\$3.21 - \$4.22 a cwt.
Potatoes	\$2.52 - \$2.52 a cwt. according to pkg.
Frozen Meats (prepaid in carcass or pkg. form)	\$4.22 a cwt.
Fresh Fruits	\$3.21 - \$4.22 a cwt.
Grain Products in Bags	\$2.52 a cwt.
Flour	\$3.21 a cwt.
Lumber	\$2.52 a cwt.
Builder's Hardware (various forms)	\$2.52 - \$4.22 a cwt.
Roofing Materials	\$2.52 a cwt.
Stoves	\$4.22 a cwt.

Factors in Water Transportation

There are a number of factors which have prohibited an over-all expansion of water transportation. The operating season in the lower Mackenzie is relatively short, lasting approximately four months. This results in a long-term lay-over of vessels, auxiliary equipment and personnel. River depths are not uniform and necessitate the use of shallow draft vessels and barges. There is a general withdrawal of water transportation equipment for the winter, to yards on the upper Mackenzie.

One of the major factors has been the under developed economy of the north. Southbound traffic continues to be much less than northbound traffic, with no imminent prospect for a rapid increase in southbound traffic.

Navigation Season on the Mackenzie River System

Data from shipping companies - average date - reasonably safe navigation.

	<u>Earliest</u>	<u>Latest</u>	<u>Average</u>	<u>Earliest</u>	<u>Latest</u>	<u>Average</u>
Waterways	April 20	May 5	May 1	Oct. 8	Nov. 5	Oct. 15
Hay River	June 5	June 6	June 10	Sept. 15	Oct. 10	Oct. 5
Norman	May 10	May 20	May 14	Sept. 20	Oct. 15	Sept. 30
Good Hope	May 20	June 10	May 30	Sept. 15	Oct. 15	Sept. 20
Aklavik	June 6	July 15	July 10	Sept. 10	Oct. 15	Sept. 15
Tuktuk	July 20	Aug. 15	Aug. 1	Sept. 1	Sept. 15	Sept. 4

\* Source: Trucking Companies



There is a variation in final acceptance dates for freight, depending on geographical location of the staging area. Freight for settlements along the lower Mackenzie could not be accepted after August 13 at Waterways. The final acceptance date at Hay River is September 4. This calls for a careful ordering of supplies as freighting by plane is too expensive for most items.

#### Official Mileage Table Between Principal Points

	Waterways to	Hay River to
Inuvik	1,610 mi.	1,042 mi.
Aklavik	1,593 "	1,025 "
Reindeer Station	1,601 "	1,033 "
Tuktoyaktuk	1,690 "	1,122 "
Arctic Red River	1,493 "	925 "
Fort McPherson	1,548 "	980 "
Fort Good Hope	1,279 "	711 "

#### Road Development in Northern Alberta

The completion of the Mackenzie Highway in 1948, linking Edmonton to Hay River, gave impetus to a re-location of the major water transportation staging area from Waterways to Hay River. Water distances were shortened and general freight rates were reduced on the Mackenzie River.

Re-location of staging areas was completed between the end of the 1963 season and the beginning of the 1964 season.

The reduction in freight rates is best illustrated by a comparison of the class 5 rate basis between the Waterways and Hay River staging points. It should be noted that reductions in water rates have been partly compensated by trucking rates in use between Edmonton and Hay River.

#### Rate Basis - Class 5 - rates in cents per cwt.

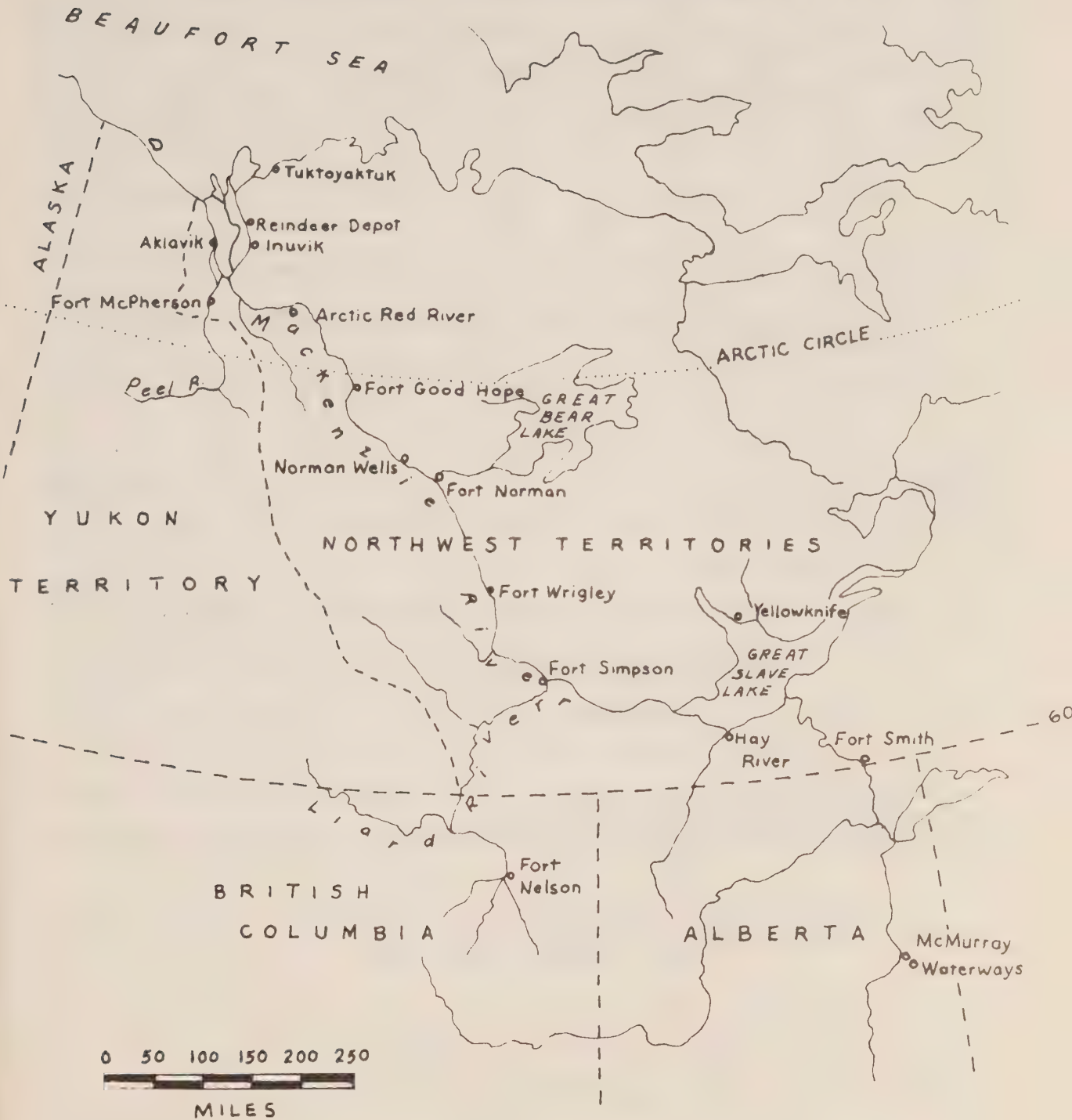
<u>Hay River</u>		<u>Waterways</u>	
	To		To
Aklavik	200	Aklavik	300
Arctic Red River	190	Arctic Red River	290
Fort Good Hope	157	Fort Good Hope	255
Fort McPherson	200	Fort McPherson	300
Inuvik	200	Inuvik	300
Tuktoyaktuk	225	Reindeer Station	300
		Tuktoyaktuk	300

#### Northbound Traffic

Some statistics are available to indicate the traffic volumes carried into the lower Mackenzie region between 1956 and 1966.



# THE GREAT SLAVE-MACKENZIE WATER ROUTE





Northbound Traffic Volumes (in tons)

	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>
Arctic Red River	17.0	21.3	86.1	44.1	72.4	87.5	40.4	88
	57.0	8.6	85.7	41	75	76.7	7.57	176.4
								1250
								1254.7
Fort McPherson	307.3	133.3	500	388.8	800	258.6	190.3	200
	152.8	55.1	166.4	73.0	150	21.2	628.0	224.9
Aklavik	260.2	491.1	600	613.1	450	202.9	136.5	130
	34.5	202	177.7	39.8	2.4	5.3	5	
Inuvik and Peindeer Station	1231.8	2419.8	600.00	2503.5	2000	1388.0	878.9	900
	2112.1	460.3	97.2	27.8	25	12	12	19.8
Tuktoyaktuk	39.9	771.5	1500	1021.2	1000	1189.9	917.0	1000
	6.1	5305.4	4500	3662.8	1500	857.2	1026.8	1021.8
			2729.5	152.6		83.3	3789.3	7300

1st horizontal column from Waterways

2nd horizontal column from Norman Wells

3rd horizontal column from Hay River



Freight Shipped into Mackenzie Delta by Barge, 1964 and 1965, (in tons)

1964					
<u>To:</u>	<u>Inuvik</u>	<u>Aklavik</u>	<u>Tuk</u>	<u>Arctic Red</u>	<u>McPherson</u>
Refrigerated Goods	328	33	-	3	57
Oil Products	11,327	1,136	1,558	1,254	3,696
Building Materials and other freight	4,009	321	571	608	4,797
1964 Total	15,664	1,490	2,129	1,865	8,550
1965					
Refrigerated Goods	228	26	10	4	50
Oil Products	14,861	1,456	1,598	1,744	2,220
Building Materials and Other Freight	4,185	572	621	565	1,729
1965 Total	19,274	2,054	2,229	2,313	3,999

Types of Barges in Current Use

The maximum capacity of refrigerator barges of the type used on the Mackenzie River is 250 tons.

Barges used for carrying other types of freight range in capacity from 70 to 1,000 tons. They vary in length from 100 to 200 feet, and in width from 27 to 50 feet. The depth ranges from five feet.

The northbound freight movements denote major trends. Major increases in freight to specific settlements reflect growing populations and an increasing demand for imported materials. In some cases, such as Arctic Red River, freight movements reflect movements of construction materials and petroleum supplies for oil exploration parties, rather than a rapid growth in population.

The large volume of freight moved to Inuvik reflects the growth of the settlement as an administrative center.



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 Freight Shipped into Mackenzie Delta by Barge, 1966, (in tons)
 

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<u>To</u>	<u>Inuvik</u>	<u>Aklavik</u>	<u>Tuk</u>	<u>Arctic Red</u>	<u>McPherson</u>
Refrigerated Goods	260	30	12	2	50
Oil Products	14,421	1,238	3,950	1,058	1,264
Building Materials and other freight	5,005	1,260	3,515	656	955
1966 Total	19,686	2,528	7,477	1,716	2,269

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Source: Transportation Co.

The imbalance between northbound and southbound freight in 1966, is clearly shown by the statistics given below.

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 Southbound Freight Shipped from the Lower Mackenzie Region by Barge, 1966,  
(in tons)
 

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<u>From</u>	<u>Inuvik</u>	<u>Aklavik</u>	<u>Tuktoyaktuk</u>	<u>Arctic Red</u>	<u>McPherson</u>
	411	55	692	347	1,763
Total Southbound freight 3,268 tons					

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Source: Transportation Co.

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The large amount of freight originating from Fort McPherson resulted from re-location of oil prospecting parties.



### Southbound Freight

The extreme directional imbalance of traffic has been an economic problem. Southbound freight is limited, due to the undeveloped economy of the region. There are no bulk commodities for export to a southern market. At the present time, southbound freight consists chiefly of equipment being shipped south for repairs and the effects of personnel leaving the region.

Southbound freight from the region under study in 1964, amounted to only 685 tons of freight. A portion of this included southbound freight from Tuktoyaktuk which had been collected from other coastal areas. In 1966, southbound freight shipments had increased to 3,268 tons.

### Water Transportation - Rate Structure

The rate structure is based on a ton-mile basis. The general commodity rate falls sharply as the length of haul increases, and then tapers off over longer distances. For a 1,000 mile haul, class five rates average 6.7 cents a ton mile. ★ In comparison, trucking rates for road, average eight cents for a ton-mile over a 1,000 mile haul.

### Commodity Rates

#### Lumber and/or Timber-sawn-in Barge Loads

Hay River to:	Rates in Cents per 1,000 F.M.B.
Aklavik	3,875
Fort McPherson	3,760
Inuvik	3,920
Tuktoyaktuk	4,145

(minimum barge load 100,000 F.B.M. or 200,000 lbs.)

### Commodity Rates

#### Refined Oil Products in Bulk in Tank Vessels

Norman Wells to:	Rate in Cents per 100 lb. where shipments exceed 25,000 imp. gallons
Aklavik, N.W.T.	90.0
Arctic Red River	60.0
Fort Good Hope	40.0
Fort McPherson	90.0
Inuvik	185.0
Tuktoyaktuk	25.0

★ As of February 1966

The Northern Transportation Company has planned reductions amounting to an average of 14.4 per cent in bulk oil rates.

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★ Many commodities move under class five rates on the Mackenzie River.

★ Inuvik can hardly be classed as a market town due to a lack of local resources for intra-regional marketing or export.



### Intra-Regional Freight Movements

There is no developed system of intra-regional water transportation, due to the under developed economy and a lack of a resource base. There has been no development of a local settlement as a market town, within the region. Minor amounts of local lumber, gravel, fish, etc., are moved intra-regionally by private or government boats and barges. Even so, there is a tendency to expedite items by aircraft, whenever possible. Intra-regional water traffic has a tendency to be slow and costly.

Passenger traffic potential is non-existent, due to the availability of aircraft and small, privately-owned, watercraft.

The accessibility of all settlements to standard freight barges used on the Mackenzie, eliminates the need for intra-regional transshipment.

Due to the distance involved on a local scale, there are readily recognizable traffic arteries within the region. Traffic diminishes rapidly with distance. Also, there are closer and well-discerned settlement ties in the region.

The three main traffic arteries are:

1. Aklavik, Inuvik - via West Channel, Schooner, Napoiak, East Channel
2. Tuktoyaktuk, Inuvik - via Kugmallit Bay, East Channel
3. Fort McPherson, Arctic Red River - via Mackenzie, Peel River

### Local Boat Construction

The use of scows in river transportation appears to have evolved from a decline in the use of moosehide boats by Indians and from the use of various types of scows and barges by white fur traders, gold seekers and trappers. Shallow draft scows are in extensive use throughout the delta and on navigable rivers draining into the Mackenzie and Peel systems. They are commonly used by Indians, Eskimos, Metis and local whites. (1)

There is some variation in the types of material used in the construction of scows. Materials used in contemporary construction of scows consists of plywood, (marine or plain), and two-by-fours of spruce, used for framing.

The length of scows varies. Length becomes an important factor on open stretches of the river and scows, between twenty-two and thirty feet, are preferred by the majority of hunters and trappers. In order to lessen the weight and give maximum push to outboard motors, ribbing is reduced to a minimum on the sides. The scows are flat-bottomed with a taper at the bow, to enable persons using them to reach firm ground on extended riverbanks. The flat bottoms are an advantage in a region where shore and beach areas are soft. The maximum width averages 72 inches while depth averages 24 inches.

In 1965, the Indian Affairs agent at Fort McPherson ordered sufficient plywood and other materials for eight scows. He estimated the cost of materials, ordered in this way, averaged thirty dollars for each scow.

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(1) The scows closely resemble johnboats used in southern Canada and the United States.



al Local Freight Tariff of Class Rates

<u>5 Rate Basis</u>		<u>Rate in cents per 100 lb. ★</u>						
<u>ik</u>	<u>Arctic Red River</u>	<u>Fort McPherson</u>	<u>Inuvik</u>	<u>Reindeer Station</u>	<u>Tuktoyaktuk</u>	<u>Fort Good Hope</u>	<u>Norman Wells</u>	<u>Waterways</u>
ik	50	50	50	70	98	100	150	300
	Arctic Red River	50	50	77	102	50	100	290
		Fort McPherson	50	81	105	75	125	300
			Inuvik	40	70	100	150	300
				Reindeer Station	70	130	154	300
					Tuktoyaktuk	147	168	300
						Fort Good Hope		255
							Norman Wells	240

ce: Transportation Company



LOCAL DISTANCES INVOLVED IN WATER TRANSPORTATION

	<u>Inuvik</u>	<u>Aklavik</u>	<u>Reindeer Depot</u>	<u>Fort McPherson</u>	<u>Arctic Red River</u>	<u>Tuk toy ak tuk</u>	<u>Fort Good Hope</u>	<u>Norman Wells</u>
Inuvik		75	27	124	117	113	331	419
Reindeer Depot	27	91		115		76	322	446
Aklavik	75		91	105	110	188		
Fort McPherson	124	105	115		55	204	389	
Arctic Red River	117	100	108	55			214	
Tuktoyaktuk	113	176		204			411	532
Fort Good Hope	331	314			214	411		121
Norman Wells	419	436		489	334	432	121	

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\* Direct air distances are considerably less. For comparison see table p. 270.



Prices for plywood are higher at the Hudson's Bay Company stores. Eight to ten sheets of  $\frac{1}{2}$  inch plywood are used in building an average river scow.

At Fort McPherson, a local Indian has a reputation for building scows, and, in 1966, contracted to build three plywood scows for other men in the community. He estimated that material costs ran to \$200, using locally purchased materials, and labour costs averaged \$100. Three to five days were involved in building a 22 foot scow.

### Future Trends

Road developments, developments in new types of vehicles and the use of pipelines for the transportation of liquid and solids, generally preclude major increases in development of water transportation facilities on the Mackenzie River. Technological advances will have a great bearing on the use of water transportation. Dr. Quirin, (1962), contemplates the use of pipelines for shipment of petroleum from northern regions to collection points on the Pacific coast, rather than utilization of existing water routes. Adaptation of the hovercraft may speed water transportation and encourage tourist development.

### Potential Expansion in Water Transportation in the Western Arctic

There are minor potentials for the expansion of water transportation in the western Arctic, in the form of economic development of the lumbering industry in the delta, and further developments in the market for petroleum goods along the Arctic coast of Alaska. Development of the petroleum industry in Alaska, however, is proceeding with the development of a refinery at Cooke Inlet, which will eliminate the long haul to Seattle. This will undoubtedly affect the use of Norman Wells petroleum.

Some consideration should be given to a market assessment of lumber and oil along the Arctic coast. Due to the pre-eminence of administration, and the lack of economic development, the potential is small, but it may give some incentive to the delta lumber industry.

### Road Development

An assessment of the present status of road development calls for an investigation of facilities existing both within and outside the region.

#### The Flat Creek - Eagle Plain Road - The Dempster Highway

Interest in road construction arose chiefly through the activities of oil exploration companies in the Eagle Plain area, west of the Richardson Mountains and the Peel Plateau.

In 1959-1960, six million pounds of equipment were carried by winter road to the Amerada Oil Company camp on the Bell River, from a staging point near Mayo in the Yukon. A winter road of 385 miles was pushed through in three months, averaging four miles per day. The road was pushed to within 57 miles of Fort McPherson, located eastward across the Richardson Mountains.

Lotz, (1962), termed significant, the development of the Flat Creek - Eagle Plains road in 1960-61. The gravel road begins at Flat Creek and extends



for seventy-eight miles to Chapman Lake in the Ogilvie Mountains. Winter road extensions were built in 1963 and maintained through 1964-1965, by petroleum companies working in the Eagle Plain, Bell River area.

The Dempster highway has been envisaged by planners as providing a highway link between Fort McPherson and the Alaskan Highway in the Yukon.

### Building Costs on the Dempster Highway

Building costs on the Dempster Highway have ranged between \$45,000 to \$55,000 a mile, for a two-lane, twenty-four-foot wide, gravel-topped road. Permafrost, and the use of the road by heavily-loaded oil rigs moving north into the Eagle Plains, have necessitated reconstruction of sections of the road.

Present proposals include additional construction at the rate of twenty-five miles a year, beginning in 1968, to connect Dawson City with Fort McPherson.

### Cost of Winter Road Building

Some statistics are available in respect to the costs of the winter road development by oil prospecting companies in 1963-64. Every mile of winter road involved a capital investment of \$1,900. Each winter, 75 per cent of the winter road system had to be rebuilt, adding \$1,425 to the cost per mile of winter road. An added \$1,000 per mile was expended in snow removal from November to April.

The winter roads became impassable during the summer due to melting of the permafrost, and were abandoned in favour of aircraft and helicopters.

Despite high costs, the economics of winter roads proved feasible for petroleum companies requiring large amounts of equipment. Movement of supplies by winter road was completed at a cost of 1/3 cent per hundred weight per mile, by tractor-trailer, compared with air transport costs of \$3.07 to \$13.85 per hundred weight per mile, depending on the capacity of the aircraft.

High-cost factors are involved in the construction and maintenance of Dempster Highway plain. Gravel deposits for road construction are scarce on the Eagle Plain and there are large expanses of muskeg.

It is interesting to note that supplies for petroleum operators, were transported by boat from Vancouver to Skagway, and transhipped by rail and road to the Flat Creek-Eagle Plain highway.

The value of a road link between Fort McPherson and the Yukon is difficult to assess. Studies are now underway to determine the economic potentials of a transportation corridor between salt water ports in south-eastern Alaska and the Yukon. Vancouver would undoubtedly provide a supply base with economic precedence over Edmonton, due to lower costs in water transportation.

A road link between Fort McPherson and Flat Creek would offer little incentive for economic development in the Eagle Plains area, beyond the development of petroleum resources. Forest resources do not warrant



exploitation. Also, there are no intervening communities for which a road link would be an incentive to economic growth.

Export commodities are limited in the region under study. A road would permit the movement of whitefish by the Alaska Highway to Edmonton. It would increase tourist potentials, and the mobility of residents of the region. It is debatable whether these are valid reasons for the development and maintenance of a high-cost road system at the present time. Existing forest resources will presumably continue to be utilized within the region since the lumbering industry is well-established in the southern Yukon and Alaska. The estimated cost of road travel, in money and time, between Inuvik and Edmonton, via the Flat Creek - Eagle Plain road, would compel many of the residents of the region to continue using airline travel as the quickest and cheapest form of transportation.

In the short-term phase, the Dempster highway would appear to add little to the economic potential, with the exception of expansion in ground prospecting in the region, and extended road travel for residents of the delta. Establishment of producing oil wells in the Eagle Plains area would dramatically alter the situation.

#### Freight Rates between Edmonton and Dawson City

For the purpose of this report it is sufficient to include sample rates for truck transportation between Edmonton and Dawson City. The distance from Edmonton to Dawson City is 1,627 miles.

#### Edmonton Alberta to Whitehorse, Y.T., 1966

##### Rates in cents per Class Weights

Lt1.	500	1M	5M	10M	15M	20M
690	660	610	550	535	497	344

#### Whitehorse to Dawson City 1966

The general commodity rate between Whitehorse and Dawson City is \$2.50 a cwt.

Additional costs would be involved in truck hauling between Dawson City and Fort McPherson, a distance of 385 miles.

Obviously, little would be gained in the way of economy from truck hauling between the Edmonton and the lower Mackenzie region, by the Alaska Highway and the Dempster highway. Distances are increased and freight rates become expensive.

The alternative development of Alaskan supply centers or even Vancouver centers would result in a reduction in costs. Residents of the lower Mackenzie region, who promote roads, in terms of economic development, must keep in mind the necessity of developing alternative marketing and supply centers. In 1966, the Chamber of Commerce at Inuvik presented



a brief to the Economic Council of Canada, requesting that the Dempster highway be completed.

As a part of the general discussion of the various aspects of road transportation, in respect to the lower Mackenzie region, it is worthwhile to include data on the costs of shipping oil-drilling rigs from western Canada into the Arctic, by the four major freight routes.

The cost of shipping 3,000 to 5,000 tons of supplies for the operation of an oil-drilling rig, by various routes from Edmonton to the Mackenzie delta, are listed below:

1. \$110 per ton: railway to Hay River and barge to delta.
2. \$223 per ton: highway to Chapman Lake and winter trail to delta.
3. \$91 per ton: rail to Vancouver and ship around Alaska to delta.
4. \$650 per ton: airlift direct from Edmonton to delta.

Approximate costs for shipping heavy goods in the western Canadian Arctic are:

by water: .04¢ to .06¢ per ton mile for barges and boats.

by land: .04¢ to .05¢ per ton mile for railroads.

.05¢ to .20¢ per ton mile for trucks on good highways.

.30¢ to \$1.00 per ton mile for winter tractor-trains.

.20¢ to .50¢ per ton mile for trucks on winter roads.

\$1.00 to \$2.00 per ton mile for cross-country vehicles.

by air: .40¢ to \$2.00 per ton mile for piston engine freighters.

.15¢ to .20¢ per ton mile for large turbo-prop freighters.

\$4.00 and higher per ton mile for helicopters.

#### Intra-Regional Road Developments

The intra-regional development of roads is hindered by a number of physical factors. Large areas of muskeg and water exist within the core area of the lower Mackenzie region, the delta plain. Break-up and freeze-up, which already hinder ground and water transportation, would seriously affect the cost factor in road maintenance.

Estimated costs in construction of a two-lane, gravel-road, run between \$20 - \$60,000 a mile, in the N.W.T. Local estimates of the cost of road development in the Inuvik region, run in the vicinity of \$50,000 a mile for two-lane, gravel roads.

The importance of an intra-regional ground transportation network calls for a close perusal of the socio-economic needs. The movement of supplies and personnel becomes minimal during the winter. Subsistence-oriented groups of hunters and trappers do not require elaborate transportation networks. A road link between Aklavik, Fort McPherson, Arctic Red River and Inuvik would require an elaborate system of bridging, or the establishment of ferry services at various points. Road links between Inuvik, Reindeer Station and Tuktoyaktuk are relatively feasible due to general terrain conditions, but are uneconomic. The residents of Tuktoyaktuk feel that an eighty-mile road, between Inuvik and Tuktoyaktuk, would increase the tourism potential at Tuktoyaktuk and permit the development of a commercial herring fishery.







There is a limited market potential for herring in the region, but no predictable market outside the region, due to competition from other sources. A Metis, (white, Eskimo), at Tuktoyaktuk, would like to open a service station.

A road between Inuvik and Tuktoyaktuk would bisect the western portion of the Reindeer Reserve and might lead to poaching of reindeer and interference with seasonal herd movements.

There is an obvious potential for a winter works program of road construction at Inuvik and Tuktoyaktuk, but road construction is almost physically impossible during the winter, due to low temperatures and terrain conditions. In the Fort McPherson area winter road building consists of brush clearance.

For the present, the intra-regional system of aircraft transportation appears to be adequate to meet regional transportation needs. Intra-regional air transportation costs while high, do not compare with costs of the construction and maintenance of local road systems.

#### Development of a Road Link between Providence and the Lower Mackenzie Region

The development of a road link between Providence and the lower Mackenzie region, is in a preliminary survey stage. This would provide an outlet from Inuvik to Edmonton using established highway facilities. The Department of Public Works is now engaged in aerial reconnaissance surveys of the Mackenzie Valley for the purpose of road planning. Development of this road link should be regarded as a long-term project, involving construction of approximately a thousand miles of gravel road.

#### Current Road Maintenance Costs in the Lower Mackenzie Region

The current annual costs of road maintenance in settlements in the lower Mackenzie region, is estimated to be about \$20,000 a year for 28.5 miles of roads. Road maintenance consists primarily of in-settlement maintenance of two-lane, gravel roads. The condition of settlement roads, with the exception of Inuvik, leaves much to be desired, from the viewpoint of road transportation in general. The poor road conditions in other settlements are derived mainly from a lack of suitable gravel.

#### Distribution of Roads in the Lower Mackenzie Region

	<u>All Weather Roads Outside settlement</u>	<u>Roads in Settlement</u>
Inuvik	15.5 miles	6 miles
Aklavik		1.5
Fort McPherson		2.0
Arctic Red River		1.0
Tuktoyaktuk		2.5

In Inuvik and Fort McPherson, dust control in summer, consists of sprinkling the roads with waste oil from electric generating units.



## Hovercraft Trials

Interesting experiments were carried out in the use of Hovercraft in the lower Mackenzie region, in the spring of 1966. Over the long-term period, further developments in Hovercraft, and a reduction in construction and maintenance costs may make feasible the use of this vehicle for freight and passenger movements in the lower Mackenzie region.

The development of major road links in the sub-Arctic and Arctic regions, is a long-term objective, involving careful planning and heavy expenditures in construction and maintenance.

Calgary Exploration Services Ltd., (Calex), in 1963, secured the contract for building the right-of-way in the Telecommunications land-line, between Inuvik and Fort Providence. Subsequently, Calex obtained government permission to build a winter road for winter freighting. The winter road links the river settlements between Fort Providence and Inuvik. During the 1964-65 season, a total of 10,040 tons was moved varying distances along the road. In 1965, 1,860 tons were hauled between Norman Wells and Inuvik. Estimated costs of winter road charges are six cents per ton-mile, plus four cents per ton-mile for operating expenses of a truck. The bulk of the freight consisted of petroleum equipment.

## Air Transportation

Pacific Western Airlines offers a first-class type aircraft passenger and freight service between Edmonton and Inuvik by DC 6. This is the major means of access for persons travelling into the lower Mackenzie region, since Northern Transportation Company does not handle passengers during the summer shipping season. An alternative routing is available through Whitehorse and Dawson City, but this increases distances for the majority of passengers travelling by aircraft between north and south.

Pacific Western Airlines Ltd. - Alberta and Y.T.					General commodity Rates		
Between	And	Distance miles	One Way Fare \$	Fare per Mile ¢	Under 100 lbs. ¢	Over 100 lbs. ¢	Over 1,800 lbs. ¢
Edmonton	Inuvik	1,300	\$137.00	10.5	N .44	25.00	25.00
	Norman				S .25	20.00	20.00
	Wells	1,062	165.00	10	N .44	25.00	25.00
					S .22	18.00	16.00
Class 1 Service	Yellow- knife	650	56.00	13.2	N .17	15.00	13.75
					S .09	8.00	7.00
	Cambridge Bay	1,162	115.00	10			
	Hay River	484	52.00	11	N .13	11.50	11.50
					S .07	6.00	6.00
	Fort Smith	436	40.00	09	N .15	12.00	10.50
					S .08	6.50	6.00

The fares charged by Pacific Western Airlines are comparable to those charged by other airline companies operating on a vertical north-south basis. In the Canadian Arctic and sub-Arctic areas, there are four major companies operating between main points in the south and main



points in the north. These are Nordair, operating between Montreal and Frobisher Bay; TransAir, operating between Winnipeg and Churchill; Pacific Western Airlines, and Canadian Pacific Airlines connecting Vancouver and Edmonton to Whitehorse.

Comparison of the Fare per Mile Rate of Companies Operating in the Canadian North

	<u>Fare per Mile</u>	<u>Routing</u>	<u>Distance</u>
Pacific Western Airlines	10 cents	Edmonton - Inuvik	1,300 miles
Canadian Pacific Airlines	08 cents	Edmonton - Whitehorse	1,024 miles
TransAir Airlines	11 - 09 cents	Winnipeg - Churchill	627 - 754 miles
Nordair Ltd.	09 cents	Montreal - Frobisher Bay	1,303 miles
QuebecAir	09 cents	Montreal - Schefferville	713 miles

The fare per mile rate in northern Canada, however, is three to five cents larger, than the fare per mile rate charged for economy fares, on major airlines routed east-west in southern Canada. The reasons for this become obvious, when one considers the traffic volume in the south as compared to the north, the competition from other forms of transportation and the economy of using larger aircraft. Also, the imbalance between northbound and southbound traffic does not exist in east-westbound traffic.

In terms of northern development where air transportation may be considered a vital factor in economic development, there appears to be some scope for examining the benefits derived from subsidization, as against the costs. Cheaper air fares would be an incentive to small entrepreneurs, and would make strategic locations in the north more attractive for the development of industry. The institution of cheaper air transportation is necessary to promote a greater interest in southern Canada by employable sectors of resident northern populations, the majority of whom cannot afford to travel, except under the confining aspects of government sponsorship and supervision. Lower air fares would also be an incentive to the tourist trade.



Passenger Traffic Volumes Outbound, Inbound Basis, 1964-65

The following statistics on outbound, inbound passenger traffic are included to show the difference in passenger volume at various airports in the N.W.T.

<u>Place</u>	1964			1965		
	<u>Outbound</u>	<u>Inbound</u>	<u>Total</u>	<u>Outbound</u>	<u>Inbound</u>	<u>Total</u>
Inuvik						
Churchill	3,090	3,135	6,225	3,405	3,115	6,520
Frobisher	1,890	1,630	3,520	2,060	1,890	3,950
Yellowknife	3,770	4,655	8,425	6,105	6,355	12,440
Fort Smith	4,955	5,040	9,995	5,990	5,705	11,695

Much larger traffic volumes are handled at major southern airports in Canada as shown by the statistics below.

Toronto

Hamilton	535,770	548,585	1,084,335	617,130	630,305	1,247,435
Montreal	419,290	427,240	846,530	468,335	477,370	945,705
Vancouver	249,985	247,715	497,700	298,195	293,155	591,350
Edmonton	138,730	137,135	275,865	179,025	179,025	358,050



P.W.A. - Inuvik

(Statistics on Inbound, Outbound Passenger and Freight Traffic 1964-65)

<u>Year</u>	<u>Inbound</u>		<u>Outbound</u>	
	Passengers	Freight (Tons)	Passengers	Freight (Tons)
1964	3,636	532	3,240	206
1965				
Jan.	281	50	206	13
Feb.	301	55	251	17
Mar.	270	65	256	20
Apr.	353	47	411	21
May	226	58	187	12
June	402	57	316	11
July	593	61	706	25
Aug.	673	60	515	34
Sept.	529	49	504	38
Oct.	320	75	325	33
Nov.	383	62	340	31
Dec.	368	76	490	28
	4,699	715	4,507	283

★ Courtesy of P.W.A.

Note the disparity between inbound and outbound freight statistics.

Also note the disparity between summer and winter months.



### Air Freight Movements from Inuvik

Wolforth, (1965, p.59), made an initial assessment of freight movements by air, from Inuvik to Edmonton, and outlying settlements. The bulk of this freight originated in southern Canada and was moved north from Edmonton by mainline aircraft. Monthly totals are small due to limited requirements and the over-all expense of shipping goods by air in this region.

### Air Freight from Inuvik (lbs.), 1964

To:	<u>Edmonton<sup>a</sup></u>	<u>Aklavik</u>	<u>Fort McPherson</u>	<u>Arctic Red River</u>	<u>Tuktoyaktuk</u>	<u>Others<sup>b</sup></u>
January	4,819	1,473	723	598	285	1,433
February	4,736	1,406	3,038	111	118	1,215
March	3,897	741	711	66	687	1,044
April	5,762	759	777	161	174	823
May	8,026	1,023	329	476	680	2,796
June	15,851	967	1,203	28	47	897
July	19,043	1,245	1,505	532	923	2,243
August	28,872	3,053	1,014	57	396	2,707
September	11,263	1,296	937	699	1,926	2,723
October	8,323	907	828	83	732	2,911
November	5,516	2,891	570	135	1,292	3,674
December	6,920	2,110	1,216	154	1,548	2,811
Year's Total	123,028	17,871	12,851	3,100	8,808	25,277

Source: Freight Manifests held by Inuvik office to Pacific Western Airlines.

a) Points outside the Mackenzie District via Edmonton.

b) Other points in the Mackenzie District.



Freight Carried on P.W.A. Scheduled Flights to Inuvik (in lbs.),  
June 1, 1964 to May 30, 1965

Month	Inuvik	Aklavik	Fort McPherson	Arctic Red River	Tuktoyaktuk	Total
June	59,402	1,673	1,129	97	-	62,301
July	54,340	1,747	775	70	-	56,980
August	56,482	2,820	1,408	95	-	60,805
September	52,790	2,223	3,109	-	1,097	59,219
October	58,041	3,195	2,042	112	1,623	65,013
November	62,402	3,192	6,755	103	2,773	75,225
December	85,484	5,226	4,479	2,029	3,362	100,580
January	70,683	7,540	1,651	24	2,689	82,587
February	74,425	4,812	3,467	592	3,374	86,670
March	76,035	4,145	2,947	46	4,085	87,257
April	83,895	4,215	4,429	41	6,455	99,035
May	86,564	1,667	799	-	2,852	91,882
Year's Total	820,543	42,455	32,989	3,209	28,358	927,554

Source: Telex messages describing each flight leaving Norman Wells.

Southbound Freight and Express Rates

Southbound express and freight rates from Inuvik are tabulated below. These rates are extremely high for permanent and non-permanent residents of the lower Mackenzie region. It appears to be an inhibiting factor for trappers wishing to send furs south to auction centers in Edmonton or other points. In terms of administration, the expediting of equipment to specialized repair centers in the south is expensive.



Inuvik Freight and Express Rates

	<u>Express</u>	<u>Freight</u>		<u>Minimum</u>	<u>Breaking Point</u>
	(per Pound)	(per Pound)	(per Cwt.)		
Edmonton	.63	.25	\$20.00	\$6.25	10
Ft. Good Hope	.42	.25	20.00	6.25	14
Ft. Norman	.37	.19	15.00	4.75	19
Ft. Resolution	.71	.37	30.00	8.25	11
Ft. Simpson	.76	.36	29.00	9.00	11
Ft. Smith	.63	.25	20.00	6.25	10
Hay River	.71	.31	25.00	7.75	10
Norman Wells	.30	.13	10.00	4.00	13
Uranium City	.71	.37	25.00	8.25	11
Wrigley	.62	.26	21.00	6.50	10
Yellowknife	.63	.30	24.00	7.50	11
Ft. Franklin	.50	.28	22.00	7.00	14

Minimum Rates - Express \$2.00

- Freight \$4.00 or the charge for over 25 lbs. whichever is greater.

Freight Rates Elsewhere in the Canadian North

Freight rates from the Great Slave Lake area, where developments in transportation have taken place on a large scale, are included for comparative purposes. As can be seen from the figures given below, there is a similarity of rates in respect to barge and air freight. This is partly from the fact that Northern Transportation Company and Pacific Western Airlines operate, both in the Great Slave Lake area, and in the lower Mackenzie region.



Generalized Freight Rates, Great Slave Lake

<u>Method</u>	<u>Per Cwt.</u>
Barge	\$1.80 - 2.50
Truck	2.00 - 4.00
Bus	8.25
Air	15.00 - 20.00
Rail	300.00 - 340.00 (carload lot)

Source - Transportation Companies involved

(Wallace, 1966, p. 98)

Local Air Transportation Costs

Local Air Transportation Costs in the Region by Scheduled Service 1966								
<u>Inuvik</u>	<u>One Way</u>	<u>Fare per mi.</u>	<u>Express Freight</u>		<u>Per Cwt.</u>	<u>Min.</u>	<u>Excess B.</u>	<u>Statute M.</u>
to								
Aklavik	8.00	.22	.12	.09	7.00	4.00	.08	36
Fort McPherson	19.00	.27	.25	.13	11.00	4.00	.19	70
Arctic Red River	19.00	.30	.28	.21	17.00	5.25	.19	62
Fort Good Hope	56.00	.28	.42	.25	20.00	6.25	.56	198
Tuktoy aktuk	19.00	.24	.19	.13	11.00	4.00	.19	80



Charters are available where emergencies arise or where time commitments do not permit a stop-over of more than a day in any community.

The frequency of mainline flights from the south, and the regional network of second class service, effectively reduces the isolation of small communities in the region.

ORTHWARD AVIATION LTD. - TIMETABLE - EFFECTIVE JUNE 15, 1966

INUVIK LOCAL SERVICES:

FLIGHT NO'S					FLIGHT NO'S						
	29	31	33	35	OTTER EQUIPMENT AND BEECHCRAFT	36	34	32	30	28	
es.	Mon. Wed.	Fri.	Sat.	Mon. Wed. Sat.		Mon. Wed. Sat.	Sat.	Fri.	Mon. Wed.	Tues.	
10:30 ↓ 10:55 ↓ 11:00 ↓ 11:40	10:30 ↓ 11:10	10:30 ↓ 10:55 ↓ 11:00 ↓ 11:40 ↓ 11:45 ↓ 12:05	10:30 ↓ 11:05	13:30 ↓ 14:15	Lv. <u>INUVIK</u> Ar. Ar. <u>AKLAVIK</u> Lv. Lv. Ar.  Ar. <u>FT. McPHERSON</u> Lv. Lv. Ar.  Ar. <u>ARCTIC RED RIVER</u> Lv.  Ar. <u>TUKTOYAKTUK</u> Lv.	15:15 ↑ 14:30	12:40 ↑ 12:15 ↑ 12:10 ↑ 11:35 ↑ 11:30 ↑ 11:10	12:55 ↑ 12:10	12:40 ↑ 12:15 ↑ 12:10 ↑ 11:25	12:30 ↑ 11:50	



The Class Two scheduled service in the Norman Wells area is presented for comparative purposes.

Northward Aviation - 1966

From	To	Distance	Single Fare	Fare per Mile	General Rate under 100 lbs.	Tariff 100 lbs. or more
Norman Wells	Fort Good Hope	88	21.00	.23	.12	10.00
	Fort Norman	44	11.00	.25	.06	6.00
	Fort Franklin	106	27.50	.26	.15	12.00

Since the communities listed above are included in the Inuvik administrative region, charter services are used directly from Inuvik, or connections are made at Norman Wells by personnel using southbound mainline flights to Norman Wells, and Northward Aviation services to outlying communities.

NORMAN WELLS LOCAL SERVICES:

<u>FLIGHT NO'S</u>							<u>FLIGHT NO'S</u>		
23	23	25	BEAVER EQUIPMENT & OTTER EQUIPMENT				26	24	24
Fri.	Tues.	Sat.					Sat.	Tues.	Fri.
09:00 ↓ 10:00	15:00 ↓ 16:00	09:00 ↓ 10:00 10:15 ↓ 11:00	Lv. <u>NORMAN WELLS</u>	Ar.	12:45 ↑		12:45	17:15 ↑ 16:15	11:15 ↑ 10:15
			Ar. <u>FT. GOOD HOPE</u>	Lv.					
			Ar. <u>FT. NORMAN</u>	Lv.	12:15		12:15		
			Lv.	Ar.	12:00		12:00		
			Ar. <u>FT. FRANKLIN</u>	Lv.	11:15 ↑		11:15		



Costs increase rapidly beyond Aklavik. Aklavik-Inuvik traffic is high due to the low cost of travel. There is a small margin of increased cost involved in using aircraft, in preference to small boat travel, but the saving in time and the convenience are considerable advantages.

Passenger trafffic declines with respect to the outlying settlements due to increased air fares. The express and freight rate is high.

The fare per mile rate amounts to almost twice the rate charged on a mainline service.

#### Local Aircraft Schedules

In the lower Mackenzie region, Aklavik, Ft. McPherson and Tuktoyaktuk receive up to four flights per week. Attempts are made to meet back-ups of express and freight by increasing the number of flights. Persons travelling to outlying communities are able to return to Inuvik within a reasonable time. The same applies to residents from the outlying communities.

The one exception is at Arctic Red River, where the amount of traffic is insufficient to warrant more than two flights per week, even during the summer period.

Some information is available to indicate the passenger traffic flow between outlying settlements and Inuvik. The statistics include trips made by private individuals and trips sponsored by government agencies. Persons requiring medical assistance or unable to take employment for lack of travel funds etc., are eligible for assistance. Low income levels prevent many local residents from utilizing this service on a large scale.

#### DOMESTIC TRAFFIC

##### Passenger Statistics

	1963		1964		1965	
	From	To	From	To	From	To
Inuvik, N.W.T. and Aklavik	495	625	580	660	680	590
Arctic Red	60	50	60	20	20	45
Fort McPherson	255	285	220	220	420	515
Tuktoyaktuk	65	100	250	230	490	410
Fort Smith	105	150	130	150	160	125
Edmonton	1,215	1,265	1,310	1,205	1,985	1,870

Source: Dept. of Transport - subject to standard sampling procedures.

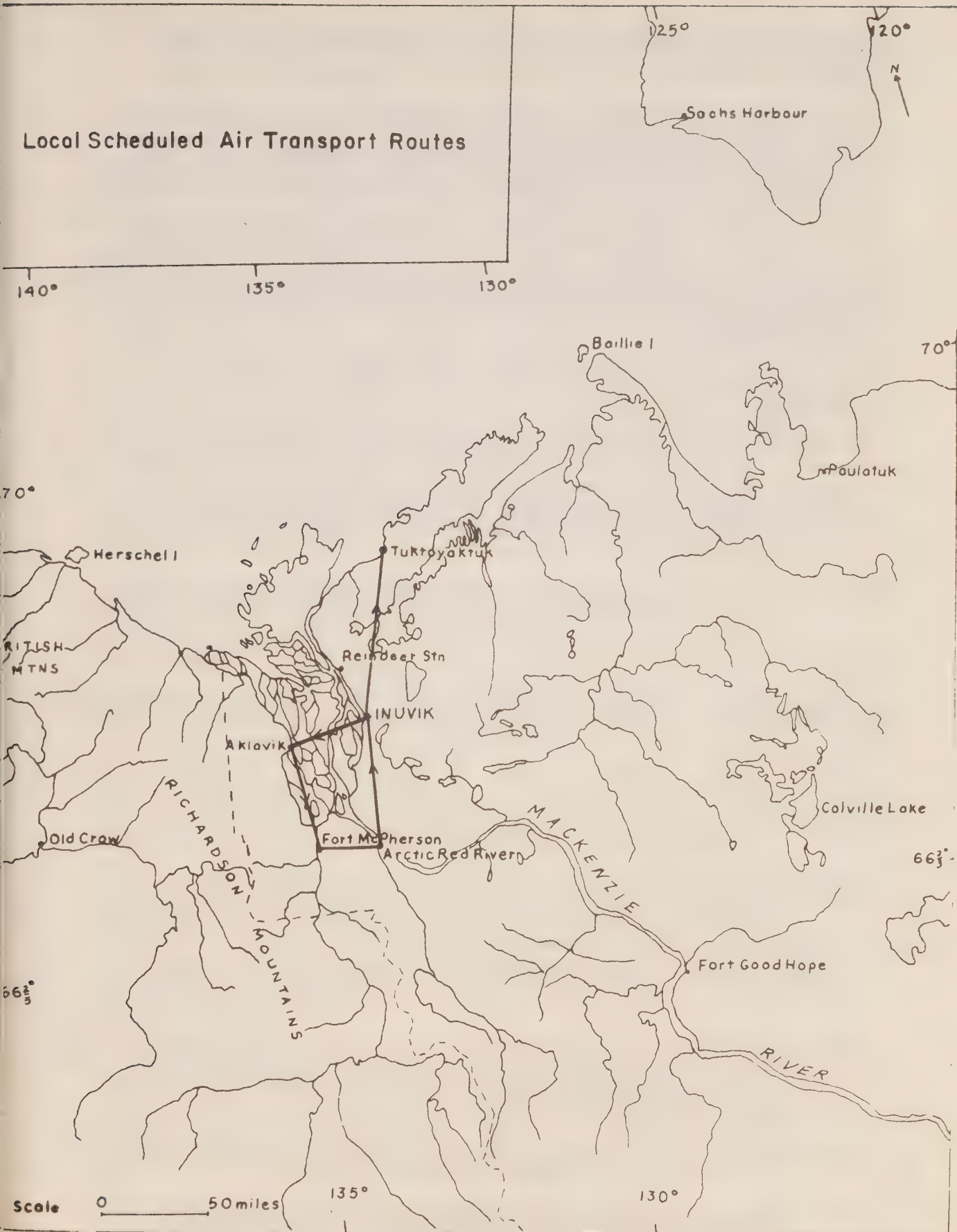


AIRPORTS AND LANDING STRIPS

Inuvik land strip	6,000' gravel surface	68°18'N. 133°29'W.	Maintained and operated by D.O.T.
Inuvik water (Long Lake) (Shell Lake)	1½ mi.	68°19'N. 133°37'W.	Unlicensed - Shell Oil C
Inuvik (Mackenzie River)	2½ mi.	68°21'N. 133°44'W.	Licensed Aklavik Flying Service Reindeer Air Services Great Northern Airways Pacific Western Airlines
Aklavik water	2.8 mi.	68°14'N. 135°00'W.	Unlicensed P.W.A.
Fort McPherson water	3 mi.	67°27'N. 134°53'W.	Unlicensed P.W.A.
Arctic Red River water	2.2 mi.	67°27'N. 133°45'W.	Unlicensed P.W.A. Ltd.
Tuktoyaktuk land	3,400'	69°26'N. 133°02'W.	Operated by U.S.A.F. Prior permission required
Reindeer Station water and ice	2 mi.	68°42'N. 134°08'W.	Unlicensed Reindeer Air Services



## Local Scheduled Air Transport Routes





## Development of All-Weather Airstrips at Settlements in the Lower Mackenzie Region

In 1966, the Department of Transport conducted surveys at Aklavik, Fort McPherson and Arctic Red River, to determine a suitable location and surface conditions for the development of all-weather airstrip facilities. This would eliminate the delays in service resulting from freeze-up and break-up and permit the use of larger aircraft. Passenger and air freight volumes, in respect to the smaller communities, are small, and the use of planes such as the D.C. 3, with larger passenger and cargo carrying capacities would not necessarily result in freight and express rate reductions. The underlying factor continues to be a limited resource base. This is also the deterrent factor in other areas of world development.

## The Transportation Link Between the Lower Mackenzie Region and the Yukon

In 1966, Great Northern Airways took over the air franchise from Connelly Dawson, between Dawson City and Inuvik. During the summer of 1966, two flights per month by Beechcraft were made during June, July and August. This transportation system also linked Old Crow with Inuvik and Dawson City, and provided a link between Sachs Harbour and Inuvik. The fare system is tabled below.

### Great Northern - Second Class Service Schedule 1966

From Between	To And	Mileage	Fare Rate	Fare per mile	General Commodity Rate
Dawson City	Old Crow	270	55.00	.20 cents	.20 cents a lb.
Dawson City	Inuvik	442	120.00	.27 cents	.25 cents a lb.
Inuvik	Sachs Harbour	320	87.00	.27 cents	.30 cents a lb.
Inuvik	Old Crow	172	45.00	.26 cents	.16 cents a lb.

During the summer of 1966, this route was becoming popular among Loucheux or Kutchin Indians with relatives in the Old Crow or Dawson City, Whitehorse, areas. It was also popular with non-permanent residents travelling to the Canadian west coast on vacation.

Increased service would offer a circular routing for tourists travelling into the lower Mackenzie region from southern Canada.

## Air Transportation Links with Communities in the Western Arctic

No scheduled services are available which link the communities of



Holman Island, Cambridge or Coppermine with the lower Mackenzie region. The limited amount of traffic is the prohibitive factor in the development of a service of this type.

Chartering services, available at Inuvik or Edmonton, are used for transporting children from these localities to the school hostels at Inuvik. Western Arctic Eskimos employed on the DEW Line use air transportation services provided by the Federal Electric Company.

#### Charter Air Services Available in the Inuvik Region

There are five air charter services now in operation in the region. These are based at Inuvik and are extensively used by government agencies with headquarters at Inuvik. One operator works on a contract basis with a local scheduled airline service, in addition to taking local charters. Another charter firm provides servicing facilities for a scheduled Class 2 service by private parties fall to a local operator, who is well-known and liked, in the region. He began business in 1961. He is more willing than other companies to extend credit for charters to local people when ready cash is lacking.

One charter operator is a licenced mechanic, and is employed by other charter firms to carry out overhauls and frequent servicing required by D.O.T. regulations.

Charters become more expensive with distance, and the charter companies receive a minor part of their total business from the outlying settlements of Arctic Red River, Fort McPherson and Tuktoyaktuk, for this reason.

The major source of income for the charter companies is work carried out for government agencies. The Reindeer Project provides a substantial amount of revenue in the form of charters.

Reference has been made to the use of charters by resident groups in the chapters on subsistence activities. Another source of revenue is from charters by mineral and petroleum exploration parties.

The following tables indicate the types of aircraft based at Inuvik by various aircraft chartering companies and the charter rates currently in effect. Where two rates are given these pertain to zonal differentiation, in respect to charter rates. The lower Mackenzie region falls into two zones with the dividing line going through Aklavik. Lower rates are charged in the 0 zone, below Aklavik, and extending into the central Yukon.

It is worthwhile noting the seasonal differentiation in certain charter costs. This is due to an over-all decline in charter work during the winter season because of low temperature and less hours of daylight. Some of the smaller operators are critical of the larger companies, who can divert aircraft to the region on special charter demand, or during periods of slack operation in other areas.

For small private charters, the Cessna 180 is extensively used, since it has a payload capacity of 800 pounds, which is quite adequate to accommodate three adult passengers and their baggage. It is the cheapest



form of service available. The larger aircraft are used by organizations or groups rather than private individuals. With respect to the smaller aircraft, local residents make use of the incidental rates when the opportunity presents itself.

Great Northern Airways Ltd.

<u>Type of Aircraft</u>	<u>Rate/Mile</u>	<u>Rate/Mile</u>	<u>Min. Charge</u>
Cessna 180 (wheels)	.55	\$65.00	\$13.00
Cessna 185 (wheels)	.60	75.00	15.00
Cessna 180 (floats)	.55	65.00	13.00
	same price in effect as on wheels		
Beaver (zone O)	.80	80.00	20.00
D.C. 3★ (wheels)	1.30	195.00	110.00
(skis)	1.65	248.00	122.00
Found	0.50 - 0.60	60. - 80.	16. - 20.

Northward Aviation

	<u>Per Day Rate</u>		<u>Per Month</u>	
	<u>Summer</u>	<u>Winter</u>	<u>Summer</u>	<u>Winter</u>
Beaver (oversized tires)	.79	79.00	13.50	
	.80	90.00	14.50	
	\$284.00	\$192.00	\$6,930.00	\$4,620.00
	279.25	185.00	6,806.25	4,537.50
Cessna 180	.50	60.00	11.00	
	.60	65.00	12.00	
Cessna 185	.55	75.00	11.00	
	.65	85.00	12.00	
Dornier	.87	127.50	40.00	
	.99	129.50	40.00	

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★ Denotes this aircraft is not regularly available but is made available from other locations for specific charters.



Current Charter Rates in Effect in the Lower Mackenzie RegionReindeer Air Services Ltd.

<u>Type of Plane</u>	<u>Rate/Mile</u>	<u>Rate/Hour</u>	<u>Min. Charge</u>
Cessna 180	0.50	\$50.00	10.00
Cessna 170 B.	0.50	50.00	10.00
Cessna 195 "275"	0.50	50.00	10.00
		<u>Min. Charges/Day</u>	<u>Min. Charges/Month</u>
Cessna 180		150.00	\$3,000.00
Cessna 170 B.		same	same

Rates and Charges for Incidental Traffic

	<u>Per passenger, per mile</u>	<u>Min. per pound/mile</u>	<u>Min.</u>
All aircraft	0.20	\$5.00	\$0.001 \$1.00

Aklavik Flying Service

	<u>Rate/Mile</u>	<u>Rate/Hour</u>	<u>Min. Charge per flight</u>
Beechcraft 18	.80	\$129.00	\$50.00

P.W.A. - Inuvik

<u>Type of Aircraft</u>	<u>Rate/Mile</u>	<u>Rate/Hour</u>
D.C. 3	\$1.30 1.50	\$195.00 225.00
D.C. 4	2.00	360.00
S. 46	1.60	288.00



Statute Miles in Effect for Charter Aircraft

	<u>Statute Miles</u>	<u>From Int. Airport</u>
Inuvik to Aklavik	35	40
Tuktoyaktuk	79	81
Reindeer Station	28	32
Kidluit Bay	82	95
Nicholson Pen.	162	
Kendall Island	89	
Fort McPherson	70	
Arctic Red River	64	
Fort Good Hope	198	
Tununuk	51	
Shingle Point	82	
Old Crow	134	
Herschel Island	160	
Sitidgi Lake	24	
Sachs Harbour	320	
Cape Parry	260	
Paulatuk		

Subsidization of Air Transportation

No forms of subsidization now exist in respect to air transportation in the Lower Mackenzie region. A valid reason for subsidizing transportation appears to exist where companies can prove that they are losing money in operating a service to a region or communities. The major air companies are not now operating at a loss, due to careful management and an ability to divert aircraft, when not busy, to other regions.

Whether a region or community should receive subsidized air transportation involves a number of other factors. If a subsidy would prove effective in bolstering economies and over-all development of a region, then there may be grounds for providing a subsidy. For the small entrepreneur and resident populations in the lower Mackenzie region, subsidization of air transportation would be an important factor in reducing the high cost of living now in existence. However, subsidization to promote one regional economy would result in outcries from other regions for subsidization.

Telephone Communication

There is a well-established communication network in the lower Mackenzie region. The R.C.M.P., at each settlement, maintain radio communication with detachment headquarters in Inuvik. The communication is also maintained with communities outside the region, Dawson City, Old Crow, by radio schedules.

A telephone system is operated by Canadian National Telecommunication, which now connects all settlements in the region. Tuktoyaktuk and Reindeer Station were brought into the telephone communications network through completion of the C.N.T. land-line link in the autumn of 1966. Prior to this, both communities were linked to Inuvik by radio, operated by government or private agencies.



Exchange Classification and Rates

	<u>Business</u>	<u>Service</u>	<u>Multi Party</u>	<u>Residence</u>	<u>Service</u>	<u>M.P.</u>
Inuvik	\$15.00	\$10.00	\$6.25	\$6.50	\$5.50	\$4.75
Aklavik	15.00	10.00	6.25	6.50	5.50	4.75
Fort McPherson	15.00	10.00	6.25	6.50	5.50	4.75
Tuktoyaktuk	15.00	10.00	6.25	6.50	5.50	4.75

★ 1966

Servicing of telephones at outlying settlements is carried out by a C.N.T. crew from Inuvik, who travel to the settlements by charter aircraft.

Long Distance Telephone Rates

	Day Except Sunday			Night and Sunday		
	<u>Station to Station</u>	<u>Person to Person</u>	<u>Each Additional Minute</u>	<u>Station to Station</u>	<u>Person to Person</u>	<u>Each Additional Minute</u>
Inuvik to						
Edmonton	\$3.10	\$4.65	\$1.00	\$2.30	\$3.50	\$ .75
Montreal	5.50	9.30	1.80	3.95	7.45	1.30
Toronto	5.50	9.30	1.80	3.95	7.45	1.30
Vancouver	4.75	7.85	1.55	3.75	6.25	1.20
Winnipeg	5.00	8.35	1.60	3.80	6.65	1.25

Facilities for Sending Telegrams

Facilities for sending telegrams are available in Inuvik. The following rates are charged on traffic between Inuvik and Edmonton:

	<u>Ten Words</u>	<u>Each Additional Word</u>
Full rate	\$2.30	.13
Day letter	Fifty words 2.70	Each Ten Additional words .54
Night letter	Fifty words 2.30	Each ten additional words .42



The completion of the C.N.T. line between Inuvik and the south, effectively linked Inuvik with southern Canada by providing a means of direct oral communication. This has increased the efficiency of administration and the handling of health and welfare matters. The private entrepreneur can now communicate by telephone direct with supply centers in Edmonton or elsewhere. For the non-permanent white residents of the lower Mackenzie region of Inuvik, the telephone link has provided increased social contact with relatives and friends in southern Canada.

Resident Indians, Eskimos and Metis are quite familiar with the telephone as a medium of communication. The land line will enable vocational trainees and hospital patients in southern Canada to maintain closer contact with relatives. At Inuvik, the permanently employed Eskimos, in particular, have telephones installed in their homes. This seems to be an outgrowth of extensive use of telephone communication by Eskimos employed on the DEW Line.

In Aklavik and Tuktoyaktuk there are no private telephones in the homes among Indian, Eskimo, or Metis. The common practice in these communities is to use the telephone in the local cafe. This is also true in Arctic Red River where local people use the Hudson's Bay Company telephone or have a message passed over the mission radio. (1) Messages are telephoned in to the radio station at Inuvik or to private residences.

At Fort McPherson local telephone subscribers include three Metis, one Eskimo, and three Indians.

Messages from the outlying settlements are telephoned or radioed into Inuvik for transmission from that point.

#### Postal Facilities

Postal facilities are available at all of the settlements in the region. The Inuvik post office functions as a regional distribution center for mail.

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(1) A small charge is made for each call. The availability of this type of service for use in the outlying settlements eliminates the necessity of paying for a home installation which would be expensive for low income groups.



THE LOWER MACKENZIE REGION  
AN AREA ECONOMIC SURVEY

PART I I







HUNTINGOCCUPATION ZONES BASED ON SUBSISTENCE ACTIVITIES

Within reasonable limits, occupation zones can be designated for various groups involved in subsistence activities. The Fort McPherson people occupy a zone extending from the mouth of the Peel River well up the Peel and Husky Channels. Southward, their activities extend to the Caribou River. Occasionally they move into the Porcupine and the Bell River systems, or the Hungry Lake area in the Yukon, for hunting and trapping. The Snake River in the south, and Margaret Lake in the Yukon, are the ultimate limits of subsistence activities.

The Arctic Red River people occupy a zone extending from the Tree River on the south, to Inuvik on the north, and their activities take them well eastward to the Anderson River. The western boundary of their activities is between the Arctic Red River and the Peel, but winter trips are made into the Richardson Mountains for caribou by a few hunters. Arctic Red River Indians resent the intrusion of Inuvik non-Indian residents into their territory south of Point Separation, for moose hunting and trapping.

The central delta zone, between Aklavik and Inuvik, is utilized by Aklavik and Inuvik residents. Their formal range of activities extends well north into the tundra and an Arctic coastal areas. Point Separation and the Rat River are southern boundaries. On an east-west basis, the zone of activities extends from the Firth River to the Anderson River.

A nuclear group of Eskimo trappers centers between Shallow Bay and Reindeer Station. This group extends its subsistence activities into the Arctic coastal region for whaling and fishing.

The Tuktoyaktuk Eskimos occupy a zone extending from Baillie Island, west to Pullen Island, and south, to Sitidgi Lake and the forks of the Anderson. They occasionally go as far west as Herschel Island on extended hunting and trapping trips, although Pullen Island is the normal limit.

Bush Camps

A discussion of bush camps is relevant here since these provide the basis for subsistence activities.

The bush camps in the region show some variation, but there is a relative uniformity in the use of log buildings, the placing of storage sheds on platforms, the use of drying racks and slab and bark smokehouses for curing meat and fish.

The camps are located with access to a source of clean water, in the form of streams or lakes, and are sited above the normal spring high-water levels. On the middle reaches of the Peel River, bush camps are placed on higher ground, well above the river levels, to avoid flooding and to afford an extended view of the river valley and the plateau and hill country to the west. These camps are reached by foot paths cut into the face of the scarp.

Some camps were extremely well maintained, while others showed signs of deterioration. One trapper was engaged in building a new camp,



in the central delta area, from local logs, in 1966.

A number of bush camps in the southern part of the showed evidence of small overgrown garden plots no longer being used. An industrious Indian trapper on the Peel Channel formerly marketed garden produce in the Fort McPherson area.

Three gardens are maintained, with excellent results, by trappers in the eastern sector of the delta.

The tendency towards the grouping of trapping camps is most obvious among Fort McPherson Indians and Metis.

In the southern part of the region there are three small clusters. These are the Indian village at the mouth of the Peel River, Blaketown at the mouth of the Rat and the camp at the Tree River. The Indian village at the mouth of the Peel River is a center for four to six Indian families. This group is composed of Fort McPherson Indians, who also have cabins at Fort McPherson. A lay reader of the Anglican church is resident there. In years past, a trading post was operated at this location. The surrounding area is good trapping country. Trips are made by younger men to the caribou hunting rounds, forty miles to the west, and in mid-winter the families center at the Stony meat camp.

Blaketown is essentially the center for an extended Metis and treaty Indian group, headed by an aging matriarch. It is centered in a muskrat and beaver area in the south-west corner of the delta proper, with access to caribou migrations along the east side of the Richardsons and on the Peel Plateau.

The Tree River group is composed of a small group of Arctic Red Indians. The family heads are brothers. This location is centered in good marten and beaver country. Moose are also plentiful.

Elsewhere in the region, there are clusters of cabins occupied by trappers, related either direct or through marriage.

In the northern part of the region, there is a less observable pattern of small groups among Eskimo trappers, although abandoned camp sites on the coast indicate this was once an important feature in occupancy patterns.

The general distribution of bush camps is shown on Maps pages 339 and 340. Permanently employed Indians, Eskimo, Metis and resident whites at Inuvik, continue to utilize bush camps, which they formerly occupied as full-time trappers and hunters. Major utilization of bush camps, by permanently employed persons, occurs during the spring ratting season or for autumn hunting.

#### Fauna of the Lower Mackenzie Region

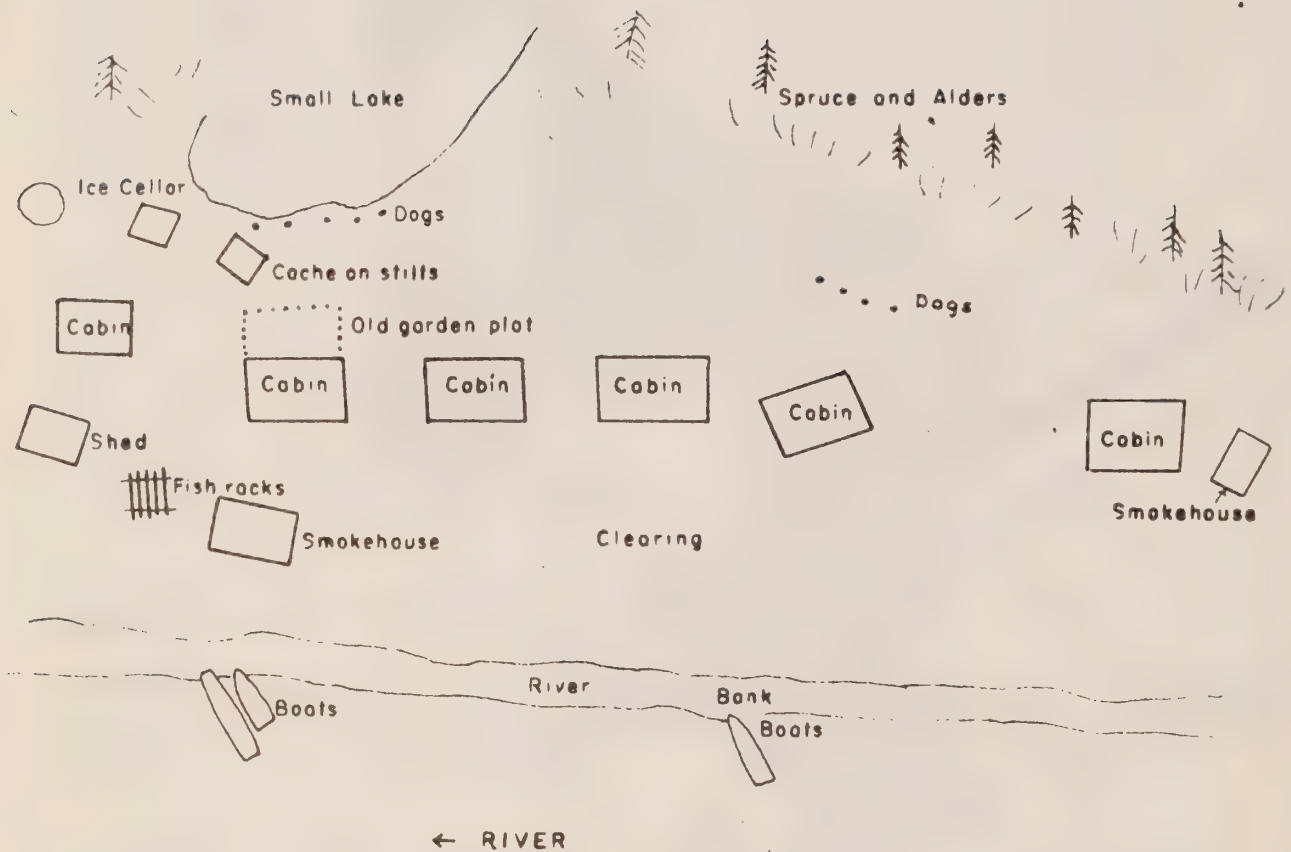
The following is a discussion of the fauna of the region and its position in the subsistence hunting economy.







# SKETCH DIAGRAM OF INDIAN VILLAGE at the mouth of the Peel River





## SUBSISTENCE CYCLE

	Summer						Winter					
	April	May	June	July	August	September	October	November	December	January	February	March
Mean Temp. °F.	9	31	49	56	50	38	20	-3	-16	-18	-17	-8
Hours Daylight	461	623	720	773	560	409	301	157	17	76	208	349
Tuktoyaktuk	sealing			sealing							sealing	
				whaling			ptarmigan					
				(Kugmallit Bay)								
		geese		ducks, geese				white fox				
		ratting						marten				
		(inland)						(inland)				
	jigging			fishing	fishing	ice fishing						
	(Eskimo Lakes)			(coastal)	(inland)			mink, lynx, colored fox				
								(inland)				
	caribou						moose					
	(cape Bathurst, Anderson River)						(inland)					
Reindeer Station	ratting							white fox				
	beaver			whaling				mink, lynx, colored foxes)				
				(Kendall Island)								
				Kidluit Bay			ptarmigan					
				fishing	fishing	ice fishing						
				(riverine)	(coastal)							
					inland lakes)							
					rabbits							
					ducks, geese							
					berries							
							moose					
Inuvik	ratting			fishing	fishing	ice fishing						
	beaver			(riverine)	(riverine and lakes)							
				whaling			ptarmigan					
				(Kendall Island)								
				berries								
				rabbits								
				ducks, geese								
								mink, lynx, marten				
							moose					
Aklavik	ratting			whaling				white fox				
	beaver			(Whitefish Station)								
				fishing				mink lynx		marten		
				(riverine)	(lakes)							
				berries								
				ducks, geese								
				rabbits								
				moose	(Moose Channel, Willow Creek)							
				sheep								
	caribou			caribou	caribou					caribou		
	(Richardson Mts.)			(Blow River, Canoe Lake)						(Richardson Mts.)		
Fort McPherson	ratting			fishing	fishing	ice fishing						
	beaver			(riverine)	(lakes)	(lakes)						
				berries				mink, lynx, colored foxes				
				ducks, geese								
				rabbits								
				moose						moose		
				(Peel, Snake)								
				sheep						marten		
				(Richardson Mts.)								
				caribou	caribou					caribou		
				(Rat River)	(Peel Plateau)					(Peel Plateau Richardson Mts.)		
Arctic Red River	beaver			fishing	fishing	ice fishing						
	ratting			(riverine)	(lakes)							
				berries								
				ducks, geese								
				rabbits								
								mink, lynx, colored fox				
										marten		
				moose								
				(Tree River, Weldon Creek)								
										caribou		
										(Travavillant Lake)		

(1) Broken line denotes occasional or spot activity (depending on availability of resource).

(2) Unbroken line denotes major activity.

(3) Mean temperature and daylight hours are for Inuvik, N.W.T.



### Moose (*Alces americana*)

Moose are widely distributed through the Hudsonian life zone in the region. Stragglers are infrequently found on the tundra, having followed water courses northward. Hunters report occasionally encountering caribou herds containing moose which have been swept up in the course of migrations.

Within the delta proper, Porsild, (1945 p.20) noted the continued pressure exerted on moose by hunters and trappers resident in that area during the nineteen twenties and thirties. Moose wander into the delta from higher ground. The central part of the delta, while offering apparently favourable habitat, now supports very few moose. The establishment of Inuvik in a zone of relatively good moose habitat on the east side of the delta, resulted in a reduction in numbers, according to delta residents. A trapper reported killing eleven moose in one winter, in the vicinity of the present townsite, prior to the establishment of Inuvik.

A few moose are sighted or killed in the northern treed portion of the delta, in the vicinity of the Schooner and Napoiak channels, and north-westward into the Shallow Bay area. The Moose channel area supports small numbers of moose, which may wander into the area from the Blow River or Fish Creek drainage systems, or from the south-east. Hunters, travelling along the coast in the summer, have reported killing moose in the Blow River area and along the Firth River.

Inuvik residents hunt moose in the East Branch and Campbell Lake areas. Aklavik hunters take moose in late summer or early autumn, either in the Moose Channel area or along Willow Creek, which drains from the mountains into the west channel.

Moose occur in the Sitidgi Lake area. Tuktoyaktuk Eskimos hunt moose along the Kugaluk River and the Mining River. In the autumn and winter trappers take moose in the Anderson River drainage systems and the Crossley Lake area. The Wolkis, who winter at Baillie Island, report moose can be found in the Mason River area and along the Horton River system where willow growth is extensive. Further east, the Paulatuk Eskimos have infrequently encountered moose in the Darnley Bay area.

In the upper portion of the delta, moose are encountered in small numbers on the large islands in the middle Mackenzie, in the Rat River area. Fort McPherson hunters hunt moose in the upper Peel drainage system. The wooded islands, between the Trail and the Snake Rivers, provide favourable habitat for moose. The Snake River area is considered to be one of the best locations for moose hunting by the Peel River Indians, but, like the Eagle River it is subject to minor hunting pressure due to distance and accessibility.

The area south from Point Separation is considered to be superior moose habitat by delta residents. The Arctic Red River hunters consider the Tree River, Thunder River and Travailant Lake areas to be good localities for moose hunting. Terrain and habitat conditions are less suitable along the lower reaches of the Arctic Red River. Trappers working south-east from Weldon Creek, hunt



moose in an extensive area of lakes and ponds.

During the summer very little moose hunting occurs for a number of reasons. The forest cover is too thick, and insects discourage hunting. Moose move onto higher ground or into lake areas where they can escape from insects during the warm period. Also the meat spoils quickly. Moose are usually killed during this period as they are encountered along water courses or wander into the vicinity of fish camps. (1)

During the period of rut in late September and October more active hunting of moose occurs. The animals move into the vicinity of rivers after the small lakes and ponds have frozen over. Also this period coincides with the movement of trappers back into their trapping areas.

Extreme cold in mid-winter limits the hunting of moose to periods when fresh snowfall permits an easy approach. Both the Tuktoyaktuk and Arctic Red River hunters in 1965-66, reported difficulties in securing moose in mid-winter due to extended periods of low-wind frequency and severe cold.

#### Moose Take - 1961-65

	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
Aklavik	23	17	24	27
Inuvik	4	9	27	22
Reindeer Station	3	4	-	-
Fort McPherson	22	15	14	35
Arctic Red River	20	52	49	20
Tuktoyaktuk	<u>3</u>	<u>37</u>	<u>22</u>	<u>12</u>
	75	134	136	116

#### Barren Ground Caribou - Western Part of the Region

A number of herds of caribou appear to form what is termed the Porcupine herd by wildlife authorities of Alaska and the Yukon. These herds move over an extensive area, extending from the Arctic slope of north-eastern Alaska and the northern Yukon, to the Peel River region.

Historical evidence points to a depletion in caribou herds, during the latter part of the nineteenth century, and a slow recovery. Increases in herds on the Arctic slopes were noted in the thirties. (2)

The movement of herds is relatively extensive and incompletely mapped. Munro, (1953), carried out a preliminary survey of herd movements in the northern Yukon.


Generally, there is an over-all north-south movement between the tundra and the mountain and plateau country. In recent years, large numbers of caribou have wintered in the southern Richardson Mountains, the Eagle Plains and on the Peel Plateau.

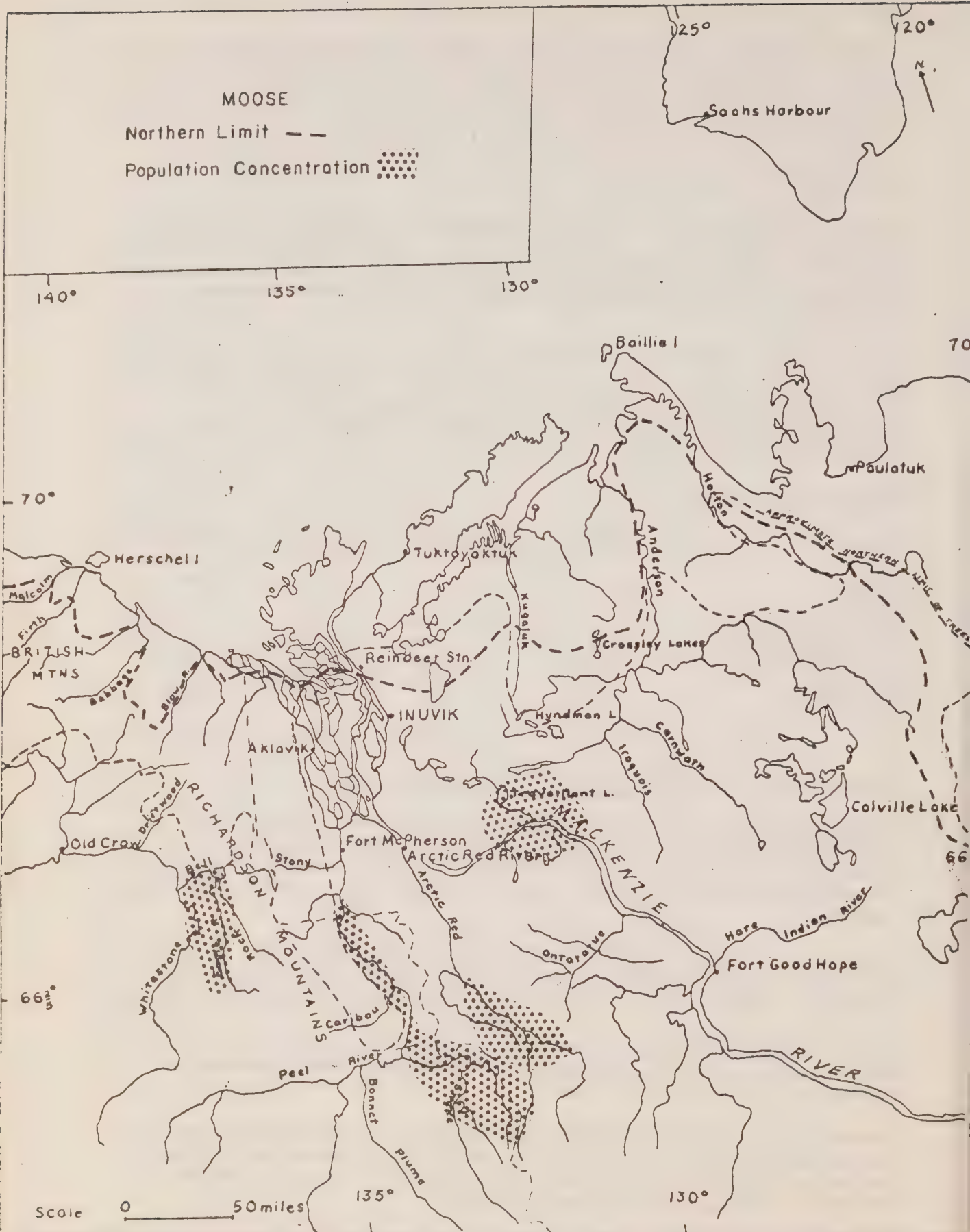
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(1) "Occurrence" kills account for a large percentage of moose taken.

(2) Similar increases were noted by Anderson River Eskimos in the thirties.



MOOSE  
 Northern Limit — —  
 Population Concentration 





The herds fawn in the tundra area and summer in the Arctic coastal region, between Tent Island and the Malcolm River. A few animals remain in the mountains, where forage is adequate and protection from insects can be had on high windswept slopes and locations, where small patches of snow persist through the summer.

Depending on climatic conditions and the availability of forage, caribou may winter on the tundra in small herds and occasionally have been encountered on Herschel Island. In mid-August, caribou herds moving from the west group at the Blow River, begin their southward migration. Some animals follow migration patterns on the west side of the Richardson Mountains, while other move through the eastern part of the mountains.

Aklavik hunters hunt caribou during the summer at various locations westward along the coast to Herschel Island. Caribou are frequently sighted from boats or reported by persons travelling in the area by aircraft.

In late summer and early autumn, caribou are hunted by Aklavik and Inuvik hunters at Coal Mine Lake, the Cache Creek area and at Canoe Lake. Caribou avoid the delta proper which is lacking in lichen growth. From time to time, a few may wander into the delta but these are quickly killed by resident hunters and trappers or they return to higher ground. In 1962, eight caribou wandered into the delta from the west, downriver from Aklavik.

Changes in weather during August, or in the autumn affects the movements of the herds. In mid-August 1966, helicopter crews saw an estimated twenty thousand caribou in three herds, moving southward in the Canoe Lake area, following a period of high cold winds on the coast.

Aklavik and Inuvik hunters move to the lower West Channel area by boat during the summer and early autumn, and secure caribou by walking inland. If the caribou have been located some distance from navigable water courses, pack dogs are used by some hunters in bringing meat down from the hills.

In recent years, Aklavik hunters have been able to secure caribou at frequent intervals during the winter, along the eastern edge of the Richardson Mountains, from the Canoe Lake area southward to the Rat River area.

By late August and early September, caribou appear in the Rat River area and are hunted by Fort McPherson people, who travel into this area by boat and then make short hunts on foot. Bull caribou are usually the first to appear in small groups.

Early winter hunts in 1965 were conducted on the northern edge of the Peel Plateau. The wintering location of caribou herds has varied considerably during the last decade and in some years, low numbers of caribou on the eastern side of the mountains have resulted in hunts being conducted as far as Hungry Lake, the Porcupine and Driftwood River areas. The Rock River area, on the west flank of the Richardson Mountains, is known to be a crossing place of caribou



on both southward and northward migrations. In 1956, a year of general scarcity of caribou in the Fort McPherson area, large numbers of caribou were reported from Hungry Lake north to the Caribou River.

In late March and April, herds of cows begin the northward movements. Caribou hunting in April by Fort McPherson and Aklavik hunters may extend as far as the Bell River area. Caribou hunting continues as long as the herds are within reasonable access. In poor years, hunters have been known to make extended hunts as far as the Old Crow flats, and old Crow, in attempts to locate caribou.

By late May and June, the caribou herds have moved into the coastal areas and may be encountered in the Blow River and the Komakuk Beach areas.

Barren ground caribou form a vital resource in the subsistence economy of the Fort McPherson and Aklavik peoples. A high degree of dependence is placed on being able to secure caribou. Moose are never available in sufficient numbers to warrant large-scale hunting.

#### Barren Ground Caribou - Eastern Part of the Region - (*Rangifer arcticus*)

In the eastern part of the lower Mackenzie region, barren ground caribou follow a north-east, south-west, migratory route.

Barren ground caribou summer in the tundra areas south-east of Cape Parry and Cape Bathurst, and winter in the area extending southward from the Crossley Lakes and the forks of the Anderson, into the Colville Lake area. They appear to be re-occupying old habitat, which is now included in the Reindeer Reserve and a small herd was observed by game officers in the Kugaluk River area in March 1965. Another herd was observed between the Crossley Lakes and the Anderson River in the same period. The Wolkis of Tuktoyaktuk report they hunt caribou in the spring and autumn on the mainland south of Baillie Island.

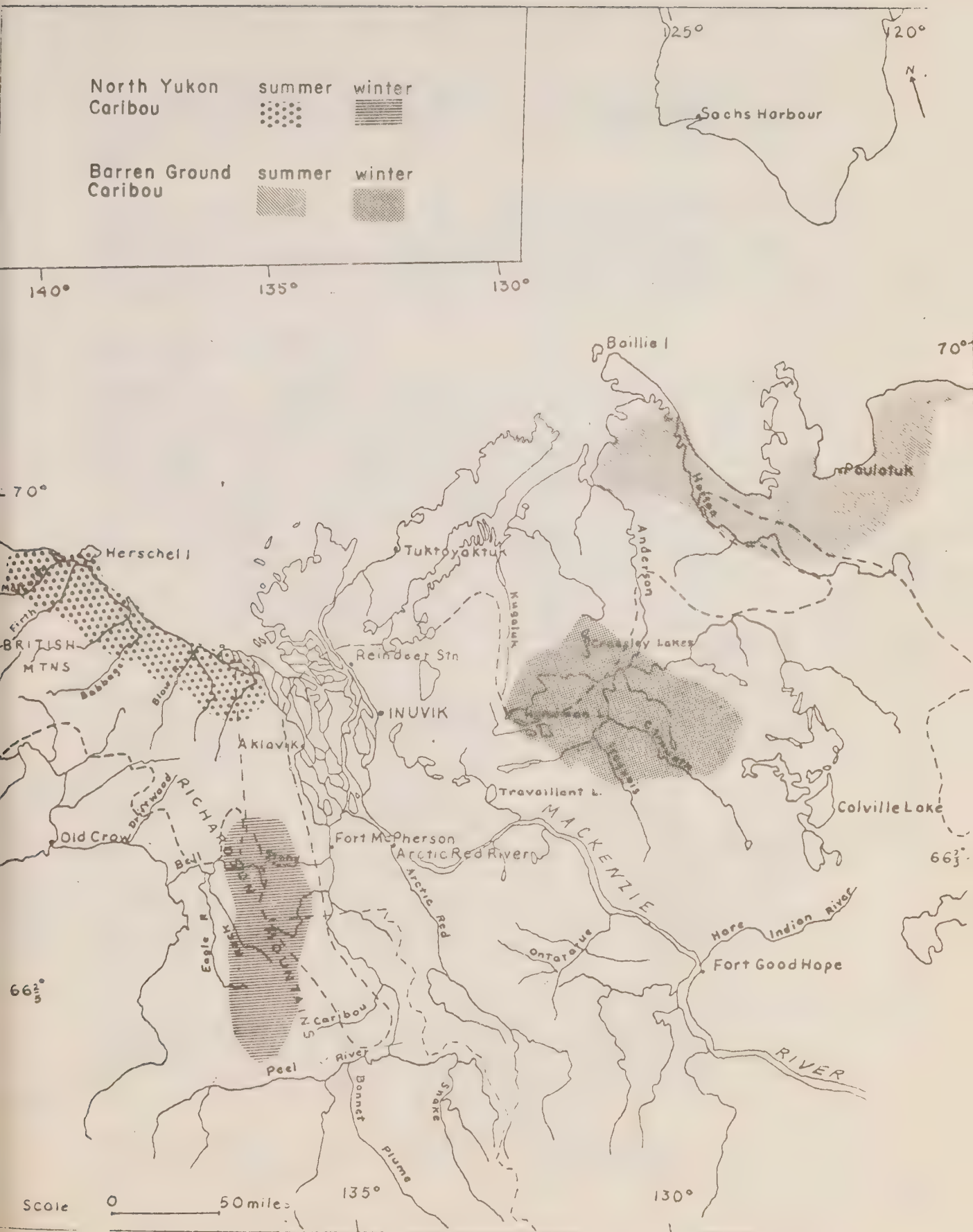
Barren ground caribou leave the Darnley Bay and Franklin Bay areas in October, moving south-westward into open wooded areas. Increasing numbers of barren ground caribou have been reported from the Hyndman Lake area in the winter. Trappers have also reported increasing numbers of caribou in the Anderson, Carnwath River areas.

Estimates of caribou populations in the eastern part of the region vary widely. MacKay, (1951), encountered caribou in fair numbers in the Darnley Bay area. Banfield, (1951), estimated that the Colville Lake herd numbered approximately 5,000. The Colville Lake herds migrate eastward towards Bathurst Inlet.

Caribou leave the wooded areas of the Anderson River area in late February and March, and are reported to be reappearing in the Paulatuk area and other coastal areas by late March. Fawning takes place in late May and early June on the tundra.

Recent surveys of caribou in the Colville Lake area, indicate the numbers have increased since 1951, and approximately 20,000 animals are believed to winter in the Aubry, Colville Lake areas.







## Caribou Migrations

Reindeer Reserve Boundary ----





The winter range of caribou in the eastern part of the region is occupied by small numbers of trappers from Inuvik and Tuktoyaktuk.

The resettlement of Paulatuk by Cape Parry Eskimos in 1966, has put them within effective hunting range of barren ground caribou in the spring, summer and early autumn. They also report small numbers of caribou remain in the hill country, south of Paulatuk during the winter.

Although caribou herds occupy areas within fifty miles of Point Separation in the winter, they have not been hunted to any extent by Arctic Red River hunters in recent years. Forty caribou were killed in the Travaillant Lake area by Arctic Red River hunters in 1959, but this does not represent consistent take.

### Caribou and Reindeer

In recent years, considerable controversy has occurred in regard to the numbers of caribou on the Reindeer Reserve. Barren ground caribou and reindeer are extremely difficult to differentiate except as fawns. Sven Johanssen, (1964), concluded there were very few caribou on the reserve. This is undoubtedly true between the Eskimo Lakes and the east branch. A few caribou have joined the reindeer herd from time to time, but these are killed by herders since they are unmanageable. However, persistent reports of trappers of the existence of caribou on the eastern half of the reindeer reserve, and estimates by Canadian Wildlife personnel, resulted in special licenses being issued to Eskimo trappers from Tuktoyaktuk, for caribou hunting in the eastern part of the reserve in 1965, between the Eskimo Lakes and the Anderson River.

Increased utilization of grazing areas, east of the Eskimo Lakes, by reindeer, could result in intermingling of caribou and reindeer. However, hunting by Tuktoyaktuk Eskimos may present an effective barrier to this.

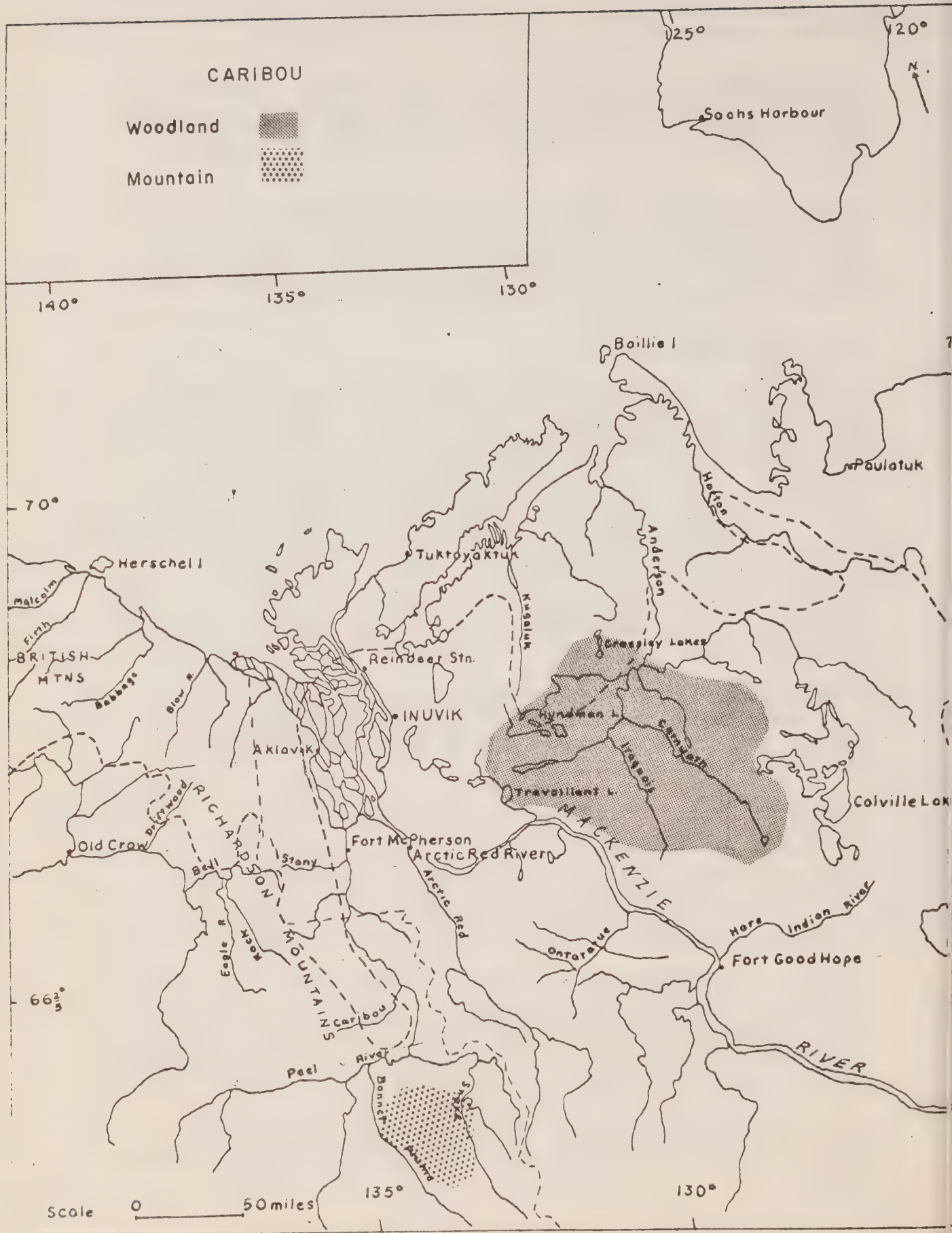
### Western Woodland Caribou (*Rangifer caribou sylvestris*)

Very little is known about the status of this animal in the region. Herds are known to exist in the Travaillant Tenlen Lake area and may range as far north as the Crossley Lakes. The herds appear to range in and out of the southern boundary of the Reindeer Reserve, and have received very little hunting pressure in recent years.

The Arctic Red River Indians are aware of these animals, but their hunting and trapping activities do not now extend east of Travaillant Lake. During the winter of 1965-66, three animals were killed west of Travaillant Lake by Arctic Red River trappers. The Arctic Red River Indians claim the animals are more difficult to hunt than the Barren ground caribou, which winter in the Anderson River country.

Woodland caribou have not been reported from other localities in the lower Mackenzie region but occur in small herds southward from the region.







Mountain Caribou

A small herd of "mountain caribou" is reported to exist in the extreme southern part of the region in the Mackenzie Mountains between the Snake River and the Bonnet Plume Rivers. These were previously hunted by Arctic Red River hunters and Indians from Fort Good Hope, hunting in the mountains in the winters.

Caribou Take - 1961-65

	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
Aklavik	319	580	621	820
Inuvik	42	29	44	143
Reindeer Station		15		
Fort McPherson	100	590	395	509
Arctic Red River	25	35	1	46
Tuktoyaktuk	<u>13</u>	<u>10</u>	<u>34</u>	<u>33</u>
	499	1,259	1,095	1,551

The caribou taken by Inuvik and Reindeer Station do not represent animals taken within the immediate areas of these settlements, but are caribou taken in the Richardson Mountains, Travaillant Lake and Anderson River areas, or along the Yukon Arctic coast.

Dall Sheep (Ovis dalli dall)

Dall sheep occur in the Richardson, British and Mackenzie Mountain systems. The numbers taken by the Fort McPherson and Aklavik hunters are small and reflect the sparse sheep populations along the eastern side of the Richardson Mountains.

Small groups of sheep are consistently found in the Black and Grey Mountain areas in the Richardson Mountains. Frank Bailey, game officer at Aklavik, estimates there is a population of approximately 100 sheep in the zone between Black Mountain and the Bell River. Both Indians and Eskimos hunt sheep in the mountains west of the Husky Channel. Early autumn is a favoured time for sheep hunting. In September 1965, an Eskimo hunting party in the Black Mountain area took five sheep. Fort McPherson hunters also resort to this location.

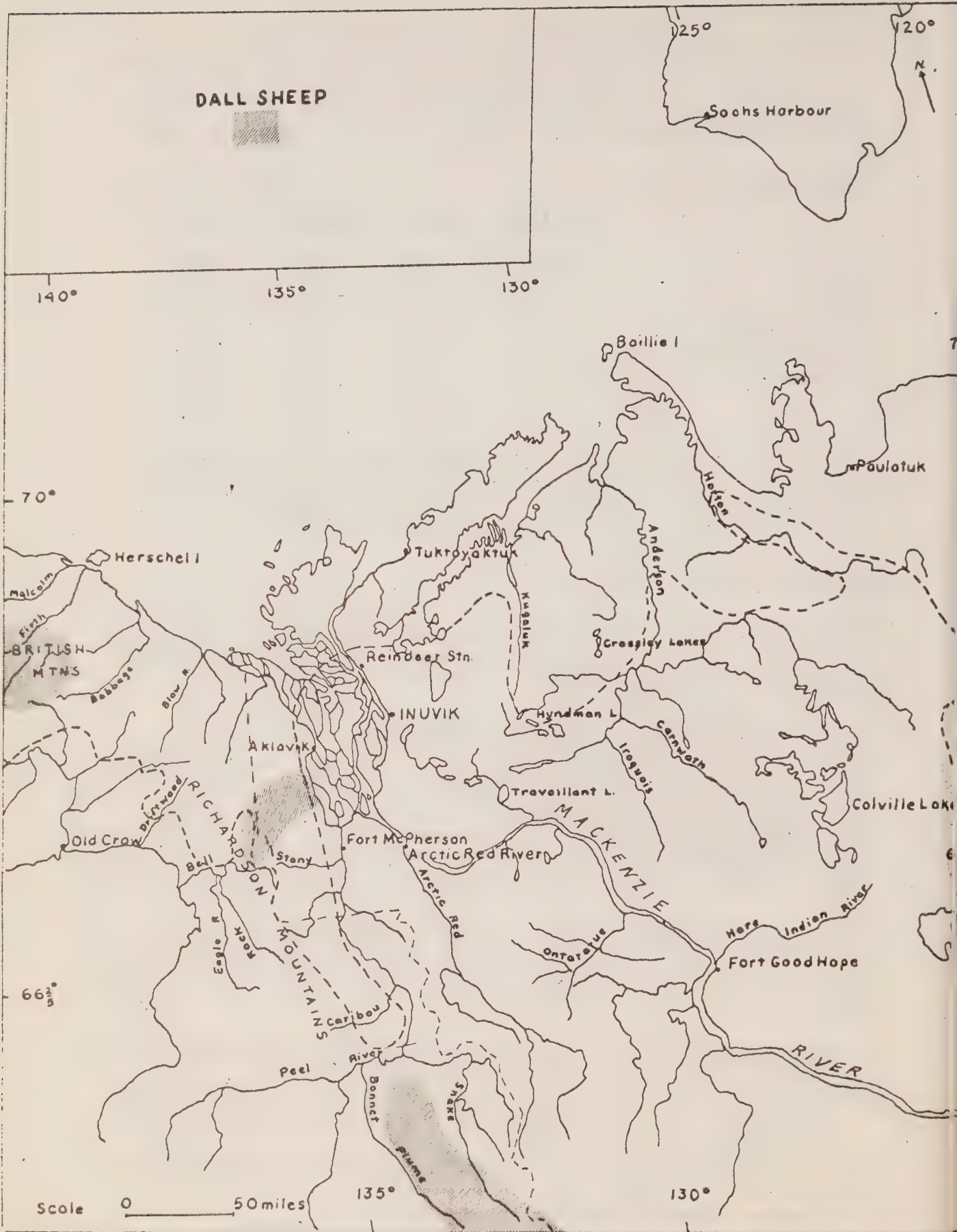
Sheep are known to exist in the British mountains but are subject to infrequent human predation. Eskimos, familiar with the Firth River area, report that sheep frequent a mineral lick twenty miles upstream along the Firth River, and can be hunted successfully at this location in the summer.

A Yukon outfitter based in Mayo operates in the Wind and Bonnet Plume areas by pack train in late summer and early September.

- Banfield (1961 p.73) termed the woodland type found in the lower Mackenzie region to be intergrades between true woodland caribou and barren ground caribou.
- Eskimos also report the existence of mineral licks along the lower reaches of the Blow River, which may account, in part, for the caribou migration patterns through this area.
- Sheep taken by Inuvik and Reindeer Station residents are animals taken while hunting in the Richardson Mountains.



DALL SHEEP





In the past, Arctic Red River hunters took sheep while hunting in the Mackenzie Mountains, between the Snake and the Bonnet Plume Rivers, during the winters, but they no longer hunt in this area.

The difficulties involved in hunting sheep in mountainous terrain and the easier access to caribou herds, have resulted in limited hunting of this species by the Fort McPherson and Aklavik peoples.

#### Dall Sheep Take 1961-65

	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
Aklavik	11	29	13	19
Inuvik			1	
Reindeer Station		1		
Arctic Red River				
Tuktoyaktuk				

#### Grizzly Bear (*Ursus horribilis*)

Anderson, (1913), listed five types of grizzlies for the northern part of the region, ranging from the Alaska boundary to the Anderson River. In recent years, these have been broadly grouped under the designation of barren-ground grizzly. Those occurring in the southern part of the region are simply referred to as mountain or silver tip grizzlies.

Grizzlies occur throughout the region. They have been sighted along the east branch, the west branch, Napoiak Channel, between the Peel Channel and the Richardson Mountains. In the eastern part of the region they occur as far north as Baillie Island and along the Anderson River drainage. Trappers reported killing a large grizzly in the Anderson River area in 1965.

In the southern part of the region, a silver tip grizzly was sighted east of Point Separation in 1963. Five grizzlies were observed in the Thunder River area in 1966. A large grizzly was killed along the Hare Indian River in 1966.

Grizzlies occur throughout the Richardson Mountain system. They are most frequently killed by Indians and Eskimos during caribou hunts, or when the animals disturb caribou meat caches.

Little local value is placed on grizzly bear hides, although they are eagerly sought after by non-permanent whites.

Barren ground grizzlies were given protection in the Northwest Territories by legislation in 1943. An apparent increase in numbers and agitation from trappers, particularly in the Mackenzie Delta area, resulted in protective legislation being removed in 1963. Trappers bitterly resented the destruction of caches and cabins by grizzly bears. (1)

While primarily vegetarians, grizzlies kill weak or injured adult caribou and moose and prey on the young of these species. Grizzlies are frequently noted following caribou migrations in the Richardson Mountains and have been observed feeding on caribou carcasses.

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(1) The deprecuations of grizzlies are frequently distorted.



It may be assumed that they kill animals wounded but not secured by Indian and Eskimo hunters. (1) Grizzly predations on the reindeer fawning grounds have occurred from time to time and individual predators are destroyed. A sow and yearling cub were killed in the spring of 1966.

McPherson, (1965), gave total population estimates of 500 to 1,000 barren ground grizzlies in the Yukon and N.W.T. Frank Bailey, game officer at Aklavik, feels that this estimate is low.

In 1965, McPherson estimated that fifteen to twenty grizzlies were being killed annually in the Mackenzie Delta area. Local estimates indicate figures as low as ten per year. While grizzlies appear plentiful very few are killed since they are infrequently encountered in areas of major travel and activity.

#### Black Bear (Ursus americanus)

Black bear have a wide distribution in the region. The cinamon phase has been reported by Indians living in the Rat River area. Black bear are not numerous in the delta proper, but occur in small numbers along the east branch. Their numbers increase in the southern part of the region in the Arctic Red River area and along the Peel. They constitute a game animal of secondary importance in the subsistence economy. A few animals are killed in the vicinity of spring muskrat camps and summer fish camps in the Peel River area. Black bear hides are usually purchased by white residents as souvenirs. An examination of fur records of the region from 1929, reveals that black bear have had little or no value, in the fur trading economy. Recently, black bear hides have become valuable on southern Canadian fur markets, with hides ranging as high as \$70 in value.

Despite relative scarcity and little attention being paid to hunting them by local residents, black bear constitute a source of food which is used whenever possible. While few direct hunts are made for black bear, they are killed whenever they are encountered by hunters travelling in search of other game. Black bear hides are put to some use as sleeping skins.

#### Wolves

Both the barren ground and timber wolf occur in the region. Despite continuing reports of wolves and the institution of a bounty payment for wolves in 1965, little attention is paid to this resource. Wolves are destroyed whenever they are sighted in the vicinity of reindeer herds. In 1964-65, ten wolves were killed near the herd. Elsewhere,

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- (1) Indians are inclined to leave grizzlies alone unless a safe kill can be made. A Metis hunter from Fort McPherson surprised four grizzlies at a caribou kill in September 1966. He killed one and wounded two others. He did not bother to track down and kill the two wounded animals.

Grizzly bears usually kill or drive black bears from territory which they have occupied.



wolves are killed by hunters as they are encountered during hunts for other game, or taken in traps set for other species.

### The Snowshoe or Varying Hare

This animal varies in importance according to a ten year cycle. It has a wide distribution throughout the region and is hunted in the late autumn, when colour changes are occurring and it can be easily spotted in the undergrowth. In the winter it is snared in wire snares set for this purpose. During periods of abundance, special hunts in the northern part of the region may be made for this animal to localities such as Willow Creek where they are known to occur in large numbers. Surplus animals have a ready market potential in the settlements of Aklavik and Inuvik. Easily taken in snares, snowshoe rabbits are quite important in the subsistence economy on a seasonal basis.

In 1966, trappers indicated this animal is now in a low point of its cycle and is scarce throughout its normal habitat.

### Ground Squirrels

These animals occur in the northern part of the region and are found in colonies in tundra and scrub tundra areas, where the ground is suitable for denning and forage conditions are adequate. Their skins are extremely attractive and are occasionally used in making parkas. They are also used in the production of handicrafts. The Eskimos in the northern part of the region use them as food. No concerted efforts are made to hunt them and they form a supplementary source of food taken occasionally during the spring, summer and autumn. Ground squirrels do not play a part in the fur trade, due to a lack of economic value.

### Marmots

Marmots occur in the mountains. Marmots and ground squirrels constitute an important food source for grizzly bear and other predators. There is very little human activity in the mountains during the summer periods, and marmots are subject to little or no human predation.

### Porcupine

Porcupine occur in small numbers in the southern part of the region. They are killed and eaten by Indians as they are encountered.

### Waterfowl

Waterfowl using both the Central and Pacific flyways, nest in the region during the summer. Concentrations of geese are distributed on islands along the Arctic littoral and the tundra islands in the lower part of the delta. They are also distributed on lakes and drainage systems in the true tundra zone. Snow, white fronted geese and Brant, occur in the tundra zone, while Canada geese have a variable

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The snowshoe rabbit cycle affects the numbers of lynx available to trappers. A decline in lynx numbers occurs following a scarcity of rabbits. In the lower Mackenzie region there is a ten-year lynx cycle.



distribution in the southern wooded part of the region.

A number of species of ducks also nest in the region, ranging from eiders and old squaws in the coastal tundra zone, to mallards, pintails and scoters in the wooded zones. The scoters, commonly called black ducks, are legally hunted at any time.

Whistling swans nest in the delta proper and in the vicinity of tundra lakes and ponds. Sandhill cranes summer in the tundra zone.

Human predation consists of illegal spring hunting of waterfowl, eggging and shooting of flightless birds during the summer, as well as legalized goose and duck hunting in the autumn.

Hunters attempt to intercept flocks of geese and ducks along the Arctic littoral before they leave the region in the autumn. Local flocks are joined by geese moving south from Banks Island. The lower west channel area, Shallow Bay and Middle Mackenzie location, are used by hunters from Inuvik, Aklavik and Reindeer Station and those trappers resident in the delta. In the autumn, flocks of geese form a minor resource in the southern part of the region, once they have been disturbed in the coastal areas.

Waterfowl constitutes a resource of some importance in the subsistence economy.

While statistics are available as to the take of geese and ducks, these must be interpreted with some caution since numbers of geese and ducks are taken whenever the opportunity and need are present.

### Ptarmigan

Ptarmigan are locally important to communities, such as Tuktoyaktuk and Reindeer Station, where land mammals are relatively scarce. Short distance migratory movements, from the true tundra to the wooded transition zone in winter, bring them within access of Inuvik, and Aklavik hunters. Ptarmigan form a minor, but relatively important, food source since they are easily taken with .22 rifles. Eskimos from Tuktoyaktuk combine ptarmigan hunting with ice fishing trips to the Eskimo lakes in the late autumn.

Spruce grouse form a minor food resource due to relative scarcity. These are not found beyond the treeline.

### Autumn Hunting

Depending on the availability of game, the time expended in hunting from the settlements is relatively short. The minimum amount of time expended by caribou hunters in the Rat River area, is three to four days, including travel by boat between Fort McPherson and the hunting ground.

The time involved in moose hunting on the Peel River and Arctic Red River varies, but again, the minimum amount of time involved in hunting varies between three and four days.



Aklavik hunters are frequently able to reach caribou in very short periods in the lower west channel area.

From Inuvik, caribou hunting in the foothills, along the west channel, in late summer and early autumn, can be carried out in three and four days, including the time involved in boat travel.

Expenditures in time increase when game occurs some distance from easy water travel. Extensive boat travel is involved on the part of Tuktoyaktuk trappers in reaching caribou hunting grounds on the west side of the delta.

### Winter Hunting

The time taken in reaching game in winter varies according to game distribution patterns from year to year. In recent years, the Fort McPherson people have had access to caribou in a day or a day and a half's travel from the settlement. Extended hunts into the Driftwood River area or Hungry Lake area, take up to two weeks in travel, to and from the hunting grounds, and may extend over much longer periods.

In winter, Aklavik hunters travel six miles downstream from the settlement and then proceed into the hills in search of caribou. Trappers in the western part of the Central Delta and along the West Channel, watch for caribou movements along the east side of the Richardsons. Caribou are hunted over a wide front, ranging from the Rat River in the south, north-westward to the Herschel Island area. The normal western extent of winter hunts is the Eagle River area. In recent years some hunters have made one day hunts from Aklavik with success.

Winter hunting of caribou by trappers from Tuktoyaktuk and Inuvik, occurs inland on the trapping grounds in the Anderson River, Crossley Lakes area. Animals sighted are followed and killed, or tracks are followed to locate animals. In periods of clear, cold weather, the presence of caribou can be detected by patches of vapour rising from herds.

The Reindeer Station trappers, located in the central part of the delta, show slight interest in caribou hunting in the Richardson Mountains.

### Hunting Patterns

Hunting techniques require little elaboration in this report, since they are contemporary techniques common to the sub-Arctic and Arctic regions. Group hunting is effective in hunting caribou in the Peel Plateau or in the mountains. The strategy of the caribou surround is used in modified form by Fort McPherson hunters. Attempts are made to surround caribou located in valleys, or to force them upward onto higher ground, where difficult terrain slows them down. Dog teams are used in making the approach, but the actual hunt is carried out on foot or snowshoes.

In each community, there are hunters who are generally more successful, due to extensive experience and knowledge of game habits. Deference



is paid to older hunters with superior abilities.

Pack dogs are occasionally used for transportation of meat in late summer and for early autumn hunts in plateau and mountain country, before sufficient snow has fallen to permit the use of dog teams. (1) Small barges and canoes are used for transportation in hunting moose during the open-water period. Some hunters use the shoulder bone of a moose rubbed against willows, to attract moose during the rutting season. The majority of hunters claim that any noise will attract moose during the rut.

Hunting and trapping are not singularly male occupations. A few Indian and Eskimo women like to hunt and trap, although on a reduced scale. A few women hunt caribou successfully.

#### Caching and Storage of Meat

The caching of meat on the hunting grounds usually occurs when hunters kill more caribou than they can handle. Quantities of meat, which have been poorly cached, are lost to ravens, bears, foxes and other scavengers. Five to six caribou carcasses are the numbers which constitute an average toboggan load. In some instances, hunters fail to return to the site of the kill. Game officers in the region investigate cases of this nature and encourage local hunters to practise conservation.

Permafrost cellars are widely used for the storage of fresh meat. At both Aklavik and Fort McPherson, local hunters are permitted to store caribou meat and other game in government freezers. At Fort McPherson, in addition to the Department of Indian Affairs and Northern Development freezer, hunters are permitted to use the hostel freezer on a space-available basis.

Eskimos resident in coastal areas, during the summer and early autumn, practise the drying of meat by cutting it in thin strips and drying it in the sun and wind on stages. The Indians more commonly dry their meat by smoking it over low fires after a period of drying in the open air.

#### Use of Aircraft in Hunting

The use of aircraft as a means of spotting and transporting game began in the nineteen forties, when trappers were enjoying good prices for furs. Small pontoon or ski-equipped planes have been effectively used in hunting caribou since that time.

Government agencies and other organizations frequently assist local residents by reporting caribou movements, and the existence of other game species, spotted from planes during intra-regional trips.

It is common practice for a pair, or trio of hunters, from Aklavik, to charter a Cessna 180 for a hunting trip into Canoe Lake. Until 1966, this was a reasonable venture since a Cessna 180 was based

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(1) Pack dogs are sled dogs used for packing in the summer.



at Aklavik. The sale of the plane in 1966 has resulted in increased costs for Aklavik hunters, since they must now charter from Inuvik, an additional thirty-five miles resulting in a total cost of \$53.00 for a one-way trip. Two trips are involved.

The manager of a plane chartering service at Inuvik, estimates that \$1,500 is expended annually on aircraft charters for caribou hunting. Inuvik hunters charter flights into the mountains but these only number two or three hunters, due to high costs. Aklavik hunters are the primary users of charter aircraft.

The use of aircraft has proved to be valuable to employed Indians, Eskimo and Metis who cannot spare the time to make more prolonged hunts, but have large meat requirements due to large families.

A permanently employed Eskimo in Aklavik, with five dependants, claimed that he counted on securing up to ten caribou a year in order to supplement store foods. A permanently employed Indian estimated that one caribou per week would supply adequate meat for himself and four dependants.

Some wastage evolves out of the use of aircraft, since light planes can normally carry up to five caribou carcasses, and hunters sometimes kill more than they can afford to have carried out by plane.

Charter aircraft are not used in hunting moose or other types of game, although aircraft charters put trappers into good game and fur areas, such as the Anderson River area.

### Meat Camps

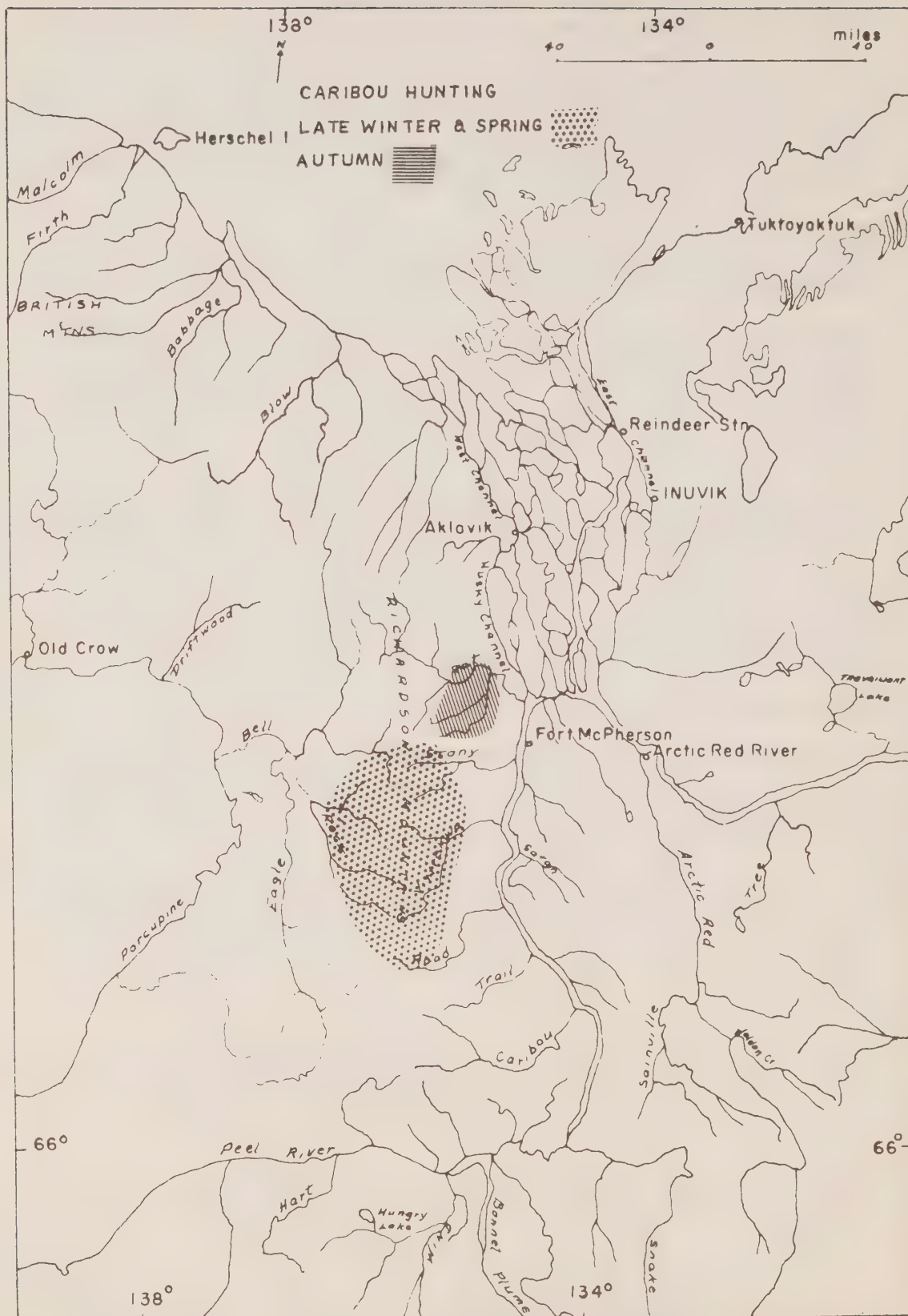
Meat camps have been a traditional feature of the subsistence economy of the Fort McPherson Indians. The establishment of meat camps occurs in mid-winter when the caribou herds have moved into their wintering grounds from the north.

The sites for meat camps are chosen in terms of access to caribou and supplies of firewood. The hunters and their families use canvas tents and tin camp stoves for accommodation and heating requirements. Short hunts are made from the edge of the timber into upland tundra areas favoured by caribou.

Stony Creek, the Trail River and Vittrekwa Creek, provide routes of easy access onto the Peel Plateau and the Richardson Mountains. In recent years, both the Headwaters of Stony Creek and the Rock River, have been favourite locations for the establishment of meat camps.

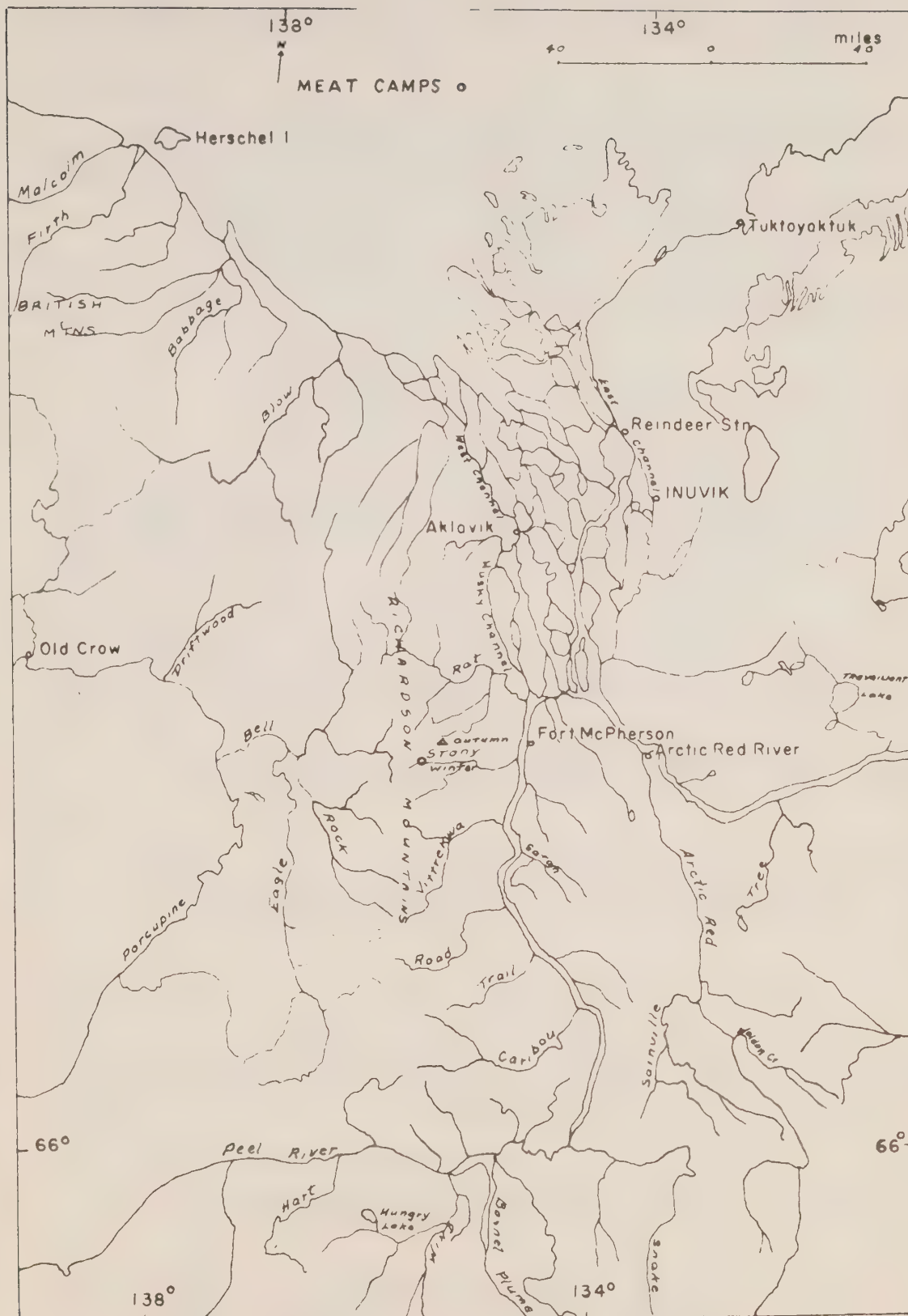
Since 1962, the headwaters of the Stony have attracted caribou hunters from Fort McPherson and large numbers of caribou in this area each year, have resulted in the establishment of a meat camp in January. The meat camp is located approximately 32 miles south-west of Fort McPherson, and can be reached easily within a one day trip by dog team. The Rock River area requires a trip of two to three days, using river and creek systems to cross the mountains.





By Fort McPherson hunters







In 1966, a large meat camp came into existence in January and early February at the Stony Creek location. By March, twenty-two families were in residence at the camp. Families from Fort McPherson, the upper delta area and along the Peel, were among those resident in the camp.

Women are involved in preparing meat for drying, snaring rabbits and collecting firewood. Large quantities of dried meat, pemmican and bone grease are prepared for use during the spring and early summer periods. Bone grease is produced by breaking up the bones which have been scraped of meat and fat and boiling them until the grease can be skimmed off and allowed to settle. The bone grease is shaped into large balls for storage purposes and used in place of lard or butter. By mid-summer of 1966 a few of the Fort McPherson people still had small quantities of bone grease and dried meat.

Fresh meat is also transported from the meat camps into the settlement, where it is used or stored for further use in permafrost cellars or in space made available in freezers.

The meat camps customarily disband when the Easter season approaches and the families return to the settlement. The caribou herds begin their northward migration in late March.

#### Sharing and Sale of Game

Vestiges of traditional patterns of sharing resources prevail both in the communities and for groups remaining on the land. In the summer, moose meat is distributed among families by successful hunters. Fresh meat is scarce at this period. The results of the first caribou hunt are shared to bring continued good luck in hunting. In September 1966, an Indian trapper killed two moose on the middle Peel and distributed the meat in Fort McPherson.

A barter system is also in existence, but this is a loose arrangement among friends. For example, trappers living in the delta, who do not hunt caribou, secure caribou meat by bartering fish, etc. for it. Widows, or women living alone, provide ammunition or loan dog teams to hunters.

A decline in sharing is being hastened by diminishing supplies and the willingness of settlement residents, who are employed, to buy game. Caribou and game birds may be purchased by persons having general hunting licences. Some meat is illegally sold to non-license holders, the non-permanent white population.

Since game is commonly sold by the chunk, saddle or quarter, it is rather difficult to arrive at a true estimate of values. This is further complicated by barter systems and meat legally and illegally sold in the region.

In 1966, a Metis trapper at Fort McPherson placed values of \$250 for a moose and \$90 for a caribou on game meat, but indicated he was comparing this to store foods, which he would have to buy in the absence of game meat.



## Game Weights

Little work has been carried out in the lower Mackenzie region in respect to the weights of game animals. Fragmentary information is available, with respect to the weights of moose and caribou, for example.

In northern Ontario, Peterson, (1955, p. 78), carried out a weight analysis of bull moose. The results are outlined below:

	<u>Total Weight</u>	<u>Hog Dressed</u>	<u>Viscera % of Total Weight</u>
Male	1153 lbs.	903 lbs.	22%
	<u>Skin, Head, Antlers</u> <u>Total Weight</u>		<u>% of Total Weight</u>
	206 lbs.		18%

Utilization of moose varies according to the season. In summer and early autumn, Eskimo and Indian hunters utilize less of the available meat where packing is involved. In autumn, winter, and early spring, utilization of less edible parts is accomplished through feeding these items to the sled dogs at the kill location. Under optimal conditions utilization probably ranges in the vicinity of 85 per cent of the total weight.

A local sampling of caribou is not available. Barring this we are forced to use an example of reindeer to obtain weight and percentage sampling.

	<u>Dressed Carcass</u>	<u>% Total Weight</u>	<u>Viscera, Blood</u>	<u>% Total Weight</u>
Male 4 yr.	158 lbs.	56	77.5	27.3
	<u>Skin, Head, Antlers, Feet</u>		<u>% of Total Weight</u>	
	40 lbs.		14%	

Again there is a variation in utilization patterns according to the season.

Seasonal variations in the physical conditions of game species affects the amount of edible food available and food values. Bull caribou become less edible during the rutting period, and hunters turn their attention to female and immature animals, whenever a choice is possible.

An analysis of the total amount of game meat available in each community is subject to a lack of information on ages and probable weight classes of game taken in the region. It is also subject to errors in reporting. However, some reliability may be attributed to game statistics in the lower Mackenzie region in recent years, as game officers have made a concerted effort to promote co-operation on the part of hunters.



### Use of Plant Food

Local plants form a minor, but seasonally, important food resource. Wild rhubarb is a plant food which is commonly used by local residents in the spring, when the leaves and stems can be eaten raw or boiled. The use of various types of edible roots is known among the older people and edible roots are casually eaten in the bush, or tundra environment, when people are engaged in subsistence activities.

Edible wild berries are abundant throughout the region. Cranberries, gooseberries, currants, raspberries and crow berries are the principal types available in the region. At Inuvik, Reindeer Station and Aklavik, cranberries are available in large quantities in season and are eaten in the fresh, frozen and preserved forms with sugar. In the southern part of the region, both cranberries and blueberries are gathered and eaten. Salmonberries are available in the northern part of the region. At Inuvik and Aklavik, cranberries sell for twenty cents a pound.

Elsewhere in the N.W.T. successful attempts have been made to market small packs of canned wild fruits as a souvenir item. The development of a small canning industry, to preserve wild berries in attractive packs, for sale as souvenir items, could be incorporated with production of other specialty foods, (smoked reindeer meat, fish, muktuk, etc.). There appears to be some potential for this type of commodity as a souvenir item, for sale to non-permanent white residents, and for export to other outlets.

Some of the older residents are also authorities on the use of herbal remedies, such as the use of spruce gum for the treatment of bruises and cuts and the use of juniper tea for colds. In the Fort McPherson area, older Indians reported the location of mineral salts used as internal remedies.

The total big game take in the lower Mackenzie region for the period, 1961-65, indicates the continuing importance of this resource.

#### Total Big Game Take - Lower Mackenzie Region

	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
Moose	75	134	136	116
Caribou	499	1,259	1,095	1,551
Sheep	11	30	14	22
Grizzly	1	-	5	10
Black bear	7	8	8	23

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Source: Returns of general hunting licence holders.

The large game take by Indian, Eskimo, Metis and some licensed white hunters in the more accessible parts of the region, should be taken into consideration in contemplating the establishment of non-resident sport hunting.



Local Food Values

	Average Weight *	Local Value per lb.	Estimated Value per pound Canadian Wildlife Service
Moose	350	25 - 40 cents	50 cents
Caribou (barren- ground)	100	25 - 40 cents	50 cents
Bear, black	200	25 - 40 cents	50 cents
Polar bear	400	" " "	" "
White whale	500	5 cents a lb.	
		1.25 - 1.50 gal.	
		muktuk 1.00 gal. oil	" "
Seals, ring	50	15 cents	" "
Seals, bearded	200	15 cents	" "
Beaver	20	20 cents	" "
Muskrat	1	50 - 60 cents	" "
Rabbits	3 - 4	75 - 85 cents	" "
Berries (cranberries)		20 - 25 cents a lb.	
Fish (fresh and dried)		20 - 30 cents a lb.	
		fresh or dried	

Size of Game Take of Various Species by Individual Hunters  
in Lower Mackenzie Region 1964-65

In order to give some idea of the range and numbers of various game species taken by hunters, the following statistics are presented. While some variance occurs from year to year, experienced hunters are generally successful in taking the same species.

Big Game Kill - Inuvik licensed hunters, 1964-65

Caribou

<u>Range of Numbers Taken</u>	<u>No. of Hunters</u>
1-4	8
5-9	8
10-19	3
20	2
Total Caribou kill 143	21 successful hunters

\* Based on 2/3 live weight



Moose Kill by Inuvik Licenced Hunters, 1964-65

<u>Range of Numbers Taken</u>	<u>No. of Hunters</u>
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1	10
2	3
3	2

Total Moose Kill 22	15 successful hunters
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In addition three Polar Bear, two Black Bear and two Grizzly were killed. The data above includes game take for Reindeer Station and hunters living in central delta area.

Big Game Kill by Licenced Hunters - Aklavik 1964-65Caribou Kill

<u>Range of Numbers Taken</u>	<u>No. of Hunters</u>
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1-4	13
5-9	27
10-19	21
20-29	6

Total Caribou Kill 820	Total Hunters 67
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Moose Kill

<u>Range of Numbers Taken</u>	<u>No. of Hunters</u>
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1	10
2	2
3	1
4	1
5	-
6	1

Total 27	Total 15
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Dall Sheep

13 hunters took 22 sheep

In addition two black bear and eight grizzly were killed. Twenty-three hunters took more than one species of game, chiefly moose and caribou. Fifty-six licenced hunters reported taking no game of any type.



Big Game Take by Licenced Hunters - Fort McPherson 1964-65Caribou

<u>Range of Numbers Taken</u>	<u>Number of Hunters</u>
1-4	12
5-9	15
10-19	14
20-29	5
30-40	1
Total Kill reported 509	47 successful hunters

Moose

<u>Range of Numbers Taken</u>	<u>Number of Hunters</u>
1	8
2	8
3	1
4	1
5	
6	
Total Kill 35	18 successful hunters

Black Bear

<u>Range in Numbers Taken</u>	<u>Number of Hunters</u>
1	2

The total number of licenced big game hunters was 129, of this number fifty-seven reported no success in hunting game of any kind. Seventeen hunters reported taking more than 1 big game species, (chiefly moose and caribou).

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Big Game Take - Arctic Red River Licenced Hunters - 1964-65Caribou

<u>Range of Numbers Taken</u>	<u>No. of Hunters</u>
1-4	2
40	1
Total Kill 46	3 successful hunters

Moose

<u>Range of Numbers Taken</u>	<u>No. of Hunters</u>
1	1
2	4
3	2
4	-
5	1
Total Kill 20	8 successful hunters

Black Bear

<u>Range of Numbers Taken</u>	<u>No. of Hunters</u>
1	6
2	2
3	3
Total 19	11 successful hunters

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(1) Of a total of 32 hunters, seven reported taking no game of any kind during the year.



Big Game Take Tuktoyaktuk - 1964-65Caribou

<u>Range of Numbers Taken</u>	<u>No. of Hunters</u>
1	7
5-9	1
10-19	1

Total Kill 33

9 successful hunters

\*Two hunters reporting kills of 6 and 11 caribou were based at Baillie Island.

Moose

<u>Range of Numbers Taken</u>	<u>No. of Hunters</u>
1	2
2	3
3	-
4	1

Total Kill 12

6 successful hunters

Polar Bears

<u>Range of Numbers Taken *</u>	<u>No. of Hunters</u>
1	3
2	1
3	1
6	1
12	1

Total Kill 26

7 successful hunters

\* Two hunters reporting kills of 6 and 12 were based at Baillie Island. Of 20 hunters reporting, 10 reported taking no game of any type.

While Tuktoyaktuk land resources seem much less ample than those taken in other areas of the region, it must be borne in mind that these are supplemented by the returns from the coastal waters of the Beaufort Sea. The place of marine mammals and fish will be discussed in other chapters.



Reported Waterfowl, Ptarmigan and Grouse Take by Residents of  
Lower Mackenzie Region 1961-65

	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
<u>Inuvik</u>				
Ducks	631	616	661	826
Geese	105	111	212	294
Grouse				
Ptarmigan	445	826	445	507
<u>Aklavik</u>				
Ducks	617	710	670	660
Geese	59	124	99	191
Grouse				
Ptarmigan	823	795	606	633
<u>Tuktoyaktuk</u>				
Ducks	383	766	430	573
Geese	697	986	705	853
Grouse				
Ptarmigan	1,581	2,393	1,361	1,900
<u>Reindeer Station</u>				
Ducks	113	38	20	17
Geese	43	38	20	17
Grouse				
Ptarmigan	174	151	89	64
<u>Fort McPherson</u>				
Ducks	389	498	249	232
Geese	14	17	8	2
Grouse				
Ptarmigan	65	121	77	26
<u>Arctic Red River</u>				
Ducks	68	280	214	242
Geese	3	10	54	61
Grouse	4	6	12	12
Ptarmigan	54	442	55	56



## RANDOM SAMPLINGS OF GAME AND FUR TAKES BY INDIVIDUAL HUNTERS AND TRAPPERS, 1964-65

Random samplings of game and fur takes in 1964-65 by individual hunters and trappers are included to show the differences in game and fur takes in the region.

	Moose	Caribou	Sheep	Black Bear	Grizzly	Polar Bear	Ptarmigan	Geese	Ducks	Grouse	Beaver	Coloured Fox	White Fox	Lynx	Marten	Mink	Muskrat	Weasel	Seal
<b>Fort McPherson</b>																			
Indian	3	10		1										1	1	6	341	10	
Metis	2	4		1					16							1	583		
Metis	1	10							10						4	3	420		
Indian	2	20							25								196		
Indian	1	6														3	452	5	
<b>Arctic Red</b>																			
Indian	5	3		1				12	30			2		14	66	5	130		
Indian		2						2	10					4			43		
Metis				1							5						9		
Indian	3	3									63			7	52	1		4	
<b>Inuvik</b>																			
Metis	3	20			1				25		4	1	1		224	2	669	34	
Eskimo								10	10					4		22	1396	22	
Eskimo		10					10	20	25		5					14	529		
Indian	2			2													182	10	
<b>Aklavik</b>																			
Indian		30	3				10		10							1	116		
Indian	4	26	3				10							2			292	3	
Metis		14							15		2						351		
Metis									6								134		
Eskimo		20	2				20		23								133		
Eskimo	1	30	1					2	5								241		
<b>Tuktoyaktuk</b>																			
Eskimo	2	1													74		1	4	
Eskimo							35	18					2		4	52		100	
Indian	4	1					40	15	10			1	1		129	3	255	6	
Eskimo		6				6	40	24	30										
Eskimo												23				4			13



Approximate Total Value of Game Meat

The approximate total value of game meat in the lower Mackenzie region for 1965-66, according to an experienced game officer in the region, amounted to the following:

Fort McPherson	\$32,000
Aklavik	48,000
Inuvik	21,000
Tuktoyaktuk	5,000
Reindeer Station	4,000
Arctic Red River	8,000

The Current Costs of Game Management in the Lower Mackenzie Region

The current direct costs of game management in the lower Mackenzie region was approximately \$67,000 in 1965-66. This included game management operations in the Fort Good Hope, Colville Lake and Fort Norman areas. The total area of game management in the lower Mackenzie region amounted to 82,700 square miles.

When indirect costs are added to the current costs of game management, resource management in the lower Mackenzie region becomes an expensive process.



## TRAPPING

In the chapter dealing with historical patterns, we have seen the gradual growth of trapping, from a secondary place in the subsistence cycle of the Kutchin and Eskimo groups, to an important position in the general economy of the region as a basic industry. The history of trapping in the lower Mackenzie region has been one of fluctuating prices, periods of prosperity and periods of depressed economy.

The problems faced by trappers of the region are endemic to the sub-Arctic and Arctic fringe areas throughout the Canadian north. Buckley, (1962), has dealt with the problems facing trappers in Northern Saskatchewan, while VanStone, (1963), has examined the trends towards decreased trapping activities by Indian groups in sub-Arctic areas. Black, (1961), reported at length on the trapping situation in the Mackenzie delta proper.

What are some of the problems reiterated by numerous investigators? Among these are price declines for furs, rising costs in trapping and difficulty in securing credit. The major problem is, of course, the decline in the price of furs. This is generally beyond the control of the trapper.

Innis, (1927), discussed the effect of increased prices on fine furs. When prices are at a high level, a market increase in price will affect the catch to a slight extent. Greater efforts may be made to secure a larger number of furs and more trappers may concentrate on these furs, but, on the whole, the increase will not be pronounced, since these furs are the reason for most of the trapping in any case. This is not necessarily true, since a marked increase in price for some species, would mean a much greater effort on the part of capable and energetic trappers working in new country if the affected species were present.

Edwards and Cowan, (1957), believed that up to about 1950 Innis' view was acceptable but, thereafter, prices for even fine furs became so exceptionally low as to create the unprecedented situation in Canadian history whereby many northern trappers abandoned trapping, or looked elsewhere to supplement low incomes from trapping.

Speaking of the effect of price on fur trapping in general, Butler, (Keith, p. 10), in 1950, stated: *"...the annual crop is not greatly influenced by prices except in more settled areas, (where alternative jobs are available), or in the case of a disproportionately low price for one particular kind of fur ....., the greater part of the north is dependent on the fur crop. Here the policy is to trap whatever animals are available, irrespective of price, although greater efforts may be exerted on more valuable furs and less valuable ones may be discarded or utilized by the trapper for his own use."* Today this does not always apply as in the case of low-priced fox, wolves, weasel, etc. Beaver are so often available and not taken regardless of market value.

Since the 1940's there has been an over-all decline in fur prices for the fur species available in the lower Mackenzie region. In certain areas production has increased, where trappers have turned to areas which have not been exploited for a number of years, i.e. marten trapping in the Anderson River area.



Mr. Len Colosimo, a former game officer at Fort McPherson, expressed the opinion that trappers in the region do not trap all species available, but rather concentrate on a few species, depending on price and availability. Fur returns for individual trappers indicate this is true.

N.W.T. Fur Take and Average Prices 1961-62 to 1964-65 with respect to the major fur species being trapped in the Lower Mackenzie Area \*

	<u>1961-62</u>		<u>1962-63</u>		<u>1963-64</u>		<u>1965-66</u>	
	<u>Total</u>	<u>A.P.</u>	<u>Total</u>	<u>A.P.</u>	<u>Total</u>	<u>A.P.</u>	<u>Total</u>	<u>A.P.</u>
Marten	10,207	\$6.24	14,409	\$8.25	18,814	\$10.97	11,567	\$9.90
Muskrat	168,468	.69	207,589	1.08	133,054	1.08	152,906	.97
Mink	8,024	18.92	9,830	20.54	5,839	26.57	4,374	19.14
Whitefox	32,522	10.05	9,162	14.37	29,920	14.98	27,041	9.23
Beaver	8,485	11.75	8,463	12.42	10,349	12.09	9,656	10.01

#### The Resource Base as an Employment Factor

While the lower Mackenzie region has been considered to be an area rich in resources by administrators and other authorities, the resource base of game and fur is becoming inadequate to meet the demands of the human population. The resources of game and fur, while reasonably capable of supplying employment, are much less successful in creating income. Men can occupy themselves in hunting and trapping for weeks or months at a time and earn next to nothing. In terms of real value the amount of outboard gas, ammunition and dogfood expended in hunting and trapping, frequently exceeds the value of the returns. Many trappers are involved in under-productive employment where much labour and time produces little.

Under-productive employment is a primary characteristic of the region, where much of the labour force is occupied in hunting and trapping. In the lower Mackenzie region, under-productive employment and unemployment of a seasonal nature, are problems which seriously affect the over-all economy.

#### Fur Species

The lower Mackenzie region is the habitat of a number of the major Canadian fur species. Certain species, such as marten and beaver, are primarily inhabitants of the Hudsonian life zone, while white fox rarely straggle below the tree line from the Arctic life zone. Distribution of species within the life zones tends to be uneven. For example, within the Hudsonian zone, marten are found in three concentrations. These are the Anderson River area, the Peel Plateau and southern Richardson Mountains and, to a lesser extent, between the Peel and the Mackenzie River. In addition to these areas of apparently more favourable habitat, marten occur in varying numbers throughout the forested areas. An exception appears to be the true delta, although stragglers are taken on higher ground.

\* Source - Dominion Bureau of Statistics



is not within the scope of this report to attempt to present life studies of the major fur species, but merely to acquaint the reader with the range of species.

### Bearing Species of the Region

<u>Species</u>	<u>Habitat</u>	<u>Food</u>	<u>Litter Size</u>	<u>Major Predators</u>	<u>Present Status</u>
<u>muskrat</u>	lakes and ponds	water plants	1-2 litters per year	mink fox	cyclical fluctuations
<u>weasel</u>	ponds and streams, exists as a bank dweller in delta proper	willow, poplar, alder bark	1-8 young per year	wolves lynx	cyclical pattern not well established
<u>skunk</u>	vicinity of water - lakes, ponds and streams	muskrat, fish, small birds, mice	5-6 young per year	lynx fox	
<u>Arctic</u>	tundra, Arctic coastal	lemmings birds	4-7 young per year	owls wolverine wolves	cyclical fluctuations
<u>ten</u>	mountains Anderson River country	red squirrels lemmings voles	1-4 young per year	wolverine lynx	no cyclical pattern established although there appear to be incidents of great fluctuation
<u>x</u>	wide distribution in wooded areas not normally found on tundra	lemmings, voles, snowshoe rabbits, ptarmigan, spruce hens	1-5 young	wolves wolverine	fluctuation in numbers over a ten-year cycle
<u>wolverine</u>	Anderson River area found in both wooded and tundra areas	snowshoe hares occasionally, caribou and reindeer	2-5 young		generally scarce throughout region - found in fair numbers in Anderson River country. Widedistribution in small numbers.

otter is found in the area between Fort McPherson and Arctic Red River and few are found occasionally in the Delta proper. The region is north of usual range. While red squirrels are available, they do not form a source of income, and fall into the "pocket money" classification, do ermine. Little effort is expended in securing them. Squirrels are comparatively scarce in the region.

### muskrat

muskrat is the staple fur resource of the Mackenzie Delta, due to its abundance, rather than its relative value. It is the major source of income for the trappers of Aklavik, Inuvik, Reindeer Station and



Muskrat Take - Lower Mackenzie Region - 1949-65

1949-50	160,924	1958-59	134,903
1950-51	234,318	1959-60	118,232
1951-52	283,924	1960-61	135,686
1952-53	173,964	1961-62	184,122
1955-56	241,594	1962-63	164,120
1956-57	161,598	1963-64	78,806
		1964-65	69,296

Muskrat Furs Traded in the Mackenzie Delta 1964-65

	<u>Aklavik</u>	<u>Inuvik</u>	<u>Fort McPherson</u>	<u>Others</u>	<u>T.</u>	<u>Average Price</u>
July		482			482	.58
August		182			182	1.58
September		12			12	.90
October						
November		11	13		24	.78
December			9		9	.50
January	71		46		117	.70
February	428	47	69	111	655	.88
March	3,101	1,809	1,978	909	7,797	.79
April	3,122	5,626	2,791	893	12,432	1.15
May	3,599	1,538	3,035	335	8,507	1.18
June	16,013	10,681	12,285	2,964	42,543	.99

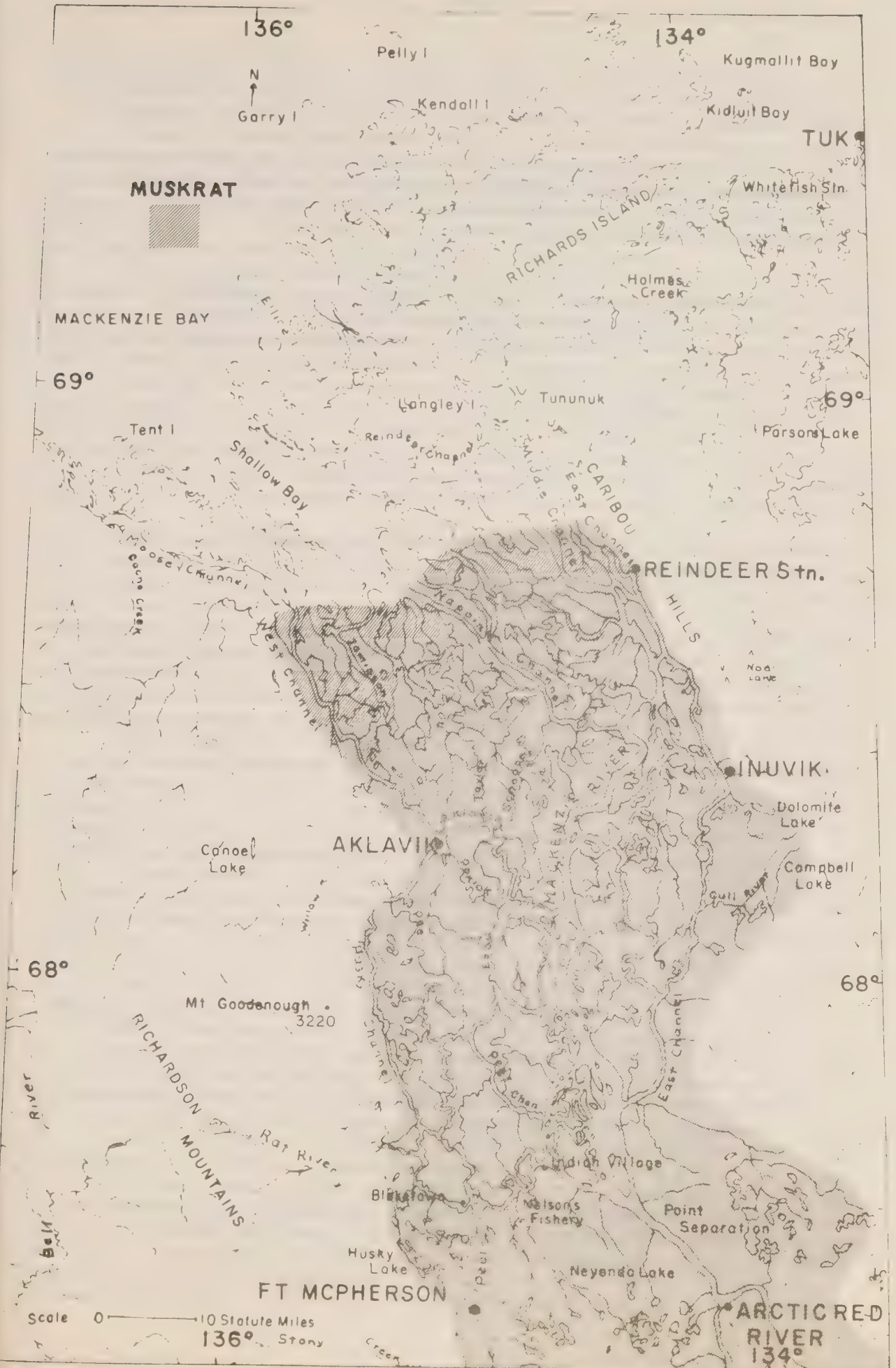
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(1) Extremely low years for muskrat production occurred in 1933-37, with 1935-36 being the lowest year with 59,258 muskrat pelts being produced in the lower Mackenzie region.

(2) Source - Fur Traders' Record Books

Since 1965, the autumn muskrat season has been closed in the region.







Fort McPherson, who concentrate their trapping activities in the delta proper. The Tuktoyaktuk, and the Arctic Red River trappers, working in the area south from Point Separation, do not have access to good muskrat areas. The Tuktoyaktuk trappers in meetings with the Trappers' Association and Game Branch officials in 1961, had a chance of gaining access to the northern part of the Mackenzie Delta, but their representatives turned down the chance.

The Arctic Red River trappers can be divided into two groups on the basis of areas being trapped. There is a small group consisting of eight families, who trap the area north of Point Separation, between Campbell Lake and the middle Mackenzie. Others, based in Inuvik, trap into the Travaillant Lake area or in the Anderson River area. Those families between Campbell Lake and the middle Mackenzie are in good muskrat trapping areas.

Members of the Arctic Red River Band share a common interest in their trapping rights. However, they show some resentment towards non-band members seeking to hunt or trap south of Point Separation.

The Arctic Red River Indians have access to the Mackenzie Delta for hunting rats, but are wary of doing this. A few always hunt muskrat on the delta plain in the spring.

Since 1943, there has been a considerable fluctuation in both the numbers and value of muskrat. The highest catch in recent years in the N.W.T. occurred in 1949, (700,000 pelts), in response to the high pelt values. Average values were \$3.50. An over-all decline in production occurred from 1955, (350,000), to 1960, (145,000), with average values remaining at 70 cents. A rise in production occurred in 1961, (220,000), but lower average prices of 55 cents prevailed. The average value of muskrat in Canada in 1962-63, was \$1.33, while in 1963-64 the average value was \$1.37.

Declines in production can be noted in the lower Mackenzie region. This appears to be due primarily to less time being spent in trapping in line with due to increased work programs by government agencies in the settlements. Cyclical trends in muskrat have also affected production.

### Beaver

The history of beaver trapping in the Mackenzie Delta is interesting from the viewpoint of resource utilization. Beaver were reported to have been very abundant on the Mackenzie Delta about 1867 and were still fairly numerous in the 1900-1910 period. In the years following, due to increased numbers of trappers and the use of destructive practises such as shooting, snaring and opening of lodges, beaver became scarce. Old-time trappers have stated that the last large beaver hunt in the delta took place in 1928-29. Thereafter, beaver continued to decrease and in 1940 the Mackenzie Delta was declared to be a beaver sanctuary. During the period from 1940 to 1958 beaver increased rapidly and in 1958 the beaver sanctuary was opened to trapping. An initial harvest of one beaver per lodge was permitted in the region.



<u>1958-59</u>	<u>1959-60</u>	<u>1960-61</u>	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
26	81	58	44	36	146	1,250 approx.

Despite increasing quotas, beaver are not being taken on a maximum yield basis. Recent estimates indicate the delta population is possibly 14,000. Trappers have been slow to realize the full potential of this resource. This is partly due to the work of preparing beaver pelts for market and the limited experience of many trappers in taking beaver.

The Arctic Red River Indians have a reputation for ability in trapping beaver and preparing the pelts for market. In contrast, many of the Fort McPherson trappers inadequately prepare beaver pelts for market due to a lack of skill.

Spring hunts, (including shooting), commenced in 1966, but the take was disappointing due to late break-ups, lack of understanding of the regulations, and failure to "get out".

#### Mink

There has been a general decline in prices paid for wild mink. A high of \$33.00 as an average value occurred in the mid-forties. There were fluctuations in prices during the fifties with an over-all trend towards lower prices. High production years in the N.W.T. were 1944 (10,000), 1952 (7,400), 1961 (10,000). Since the 1960's, the trend to lower prices has continued, with average values for wild mink in Canada in 1962-63 being \$15.80, while in 1963-64 average values climbed to \$16.23. Average values for mink in the N.W.T. in 1962-63, were \$20.54 and went as high as \$26.57 in 1963-64 but dropped to \$19.14 in 1964-65.

There has been a decline in mink production in the lower Mackenzie region arising from a decline in prices. The number of skilled trappers, who specialize in mink production, is less than the number who take muskrat. As with marten, there appears to be a tendency to over-trap this species with resulting low recovery rates.

Wild delta mink have enjoyed a good reputation on fur markets, due to quality of the fur, which is superior to wild mink taken in other localities. Delta mink are extremely large, ranging to 34" (to tail butt). Prices in 1961-62-63, reached a peak, some sold for as high as \$93 and \$100 on the Edmonton market. Delta males bring a price far beyond national average. However, they seem to be becoming scarcer.

The largest number of mink taken in recent years, between 1960 and 1965, have been taken by Aklavik and Inuvik trappers. This does not necessarily indicate superior habitat conditions but rather a greater skill on the part of Metis and whites in trapping mink.

#### White Fox

Sharp fluctuations occurred in the white fox take in the N.W.T., as well as a general slump in prices during the 1950's, in line with a general decline in long-haired fur prices. The range of average values has been considerable, with fluctuations from a high of \$36.00 in 1945, to lows of \$5.00 in 1950 and 1960. The average value of white fox in Canada



in 1963-64, was \$14.54.

Lack of interest on the part of trappers in respect to the Yukon coast, stems largely from the restricted fur resource base. The large-scale activities of Sachs Harbour trappers presumably has had some effect on migratory patterns of white fox, moving from Banks Island across the sea-ice into mainland areas. Extensive areas of tundra environment in the Herschel Island area are lacking in conditions suitable to other fur species. These areas may now be considered insufficient to support trappers on a white fox, caribou and seal economy. This is in strong contrast to the abundance of white fox on Banks Island.

### Marten

In the case of marten production there was a gradual rise in production in the N.W.T., from 1947 through the fifties, with a slump occurring in 1957. In 1961 a sharp rise in marten production occurred with a harvest of 13,497 pelts. In 1962-63, average values of \$8.25 were paid for marten, while in 1963-64, the average value was \$10.97 in the N.W.T. This represents a severe decline in prices since the 1940's, when average values of marten ran from \$46.31 to \$56.31 to \$56.17 through the years 1943-44 to 1945-46.

The decline in marten prices has been a factor in the decreased interest shown by the Fort McPherson people in making extended trapping trips in the Peel Plateau and southern Richardson Mountain areas, where marten constitute the most easily-exploited fur resource. Marten can be taken on a variety of baits and are easily trapped.

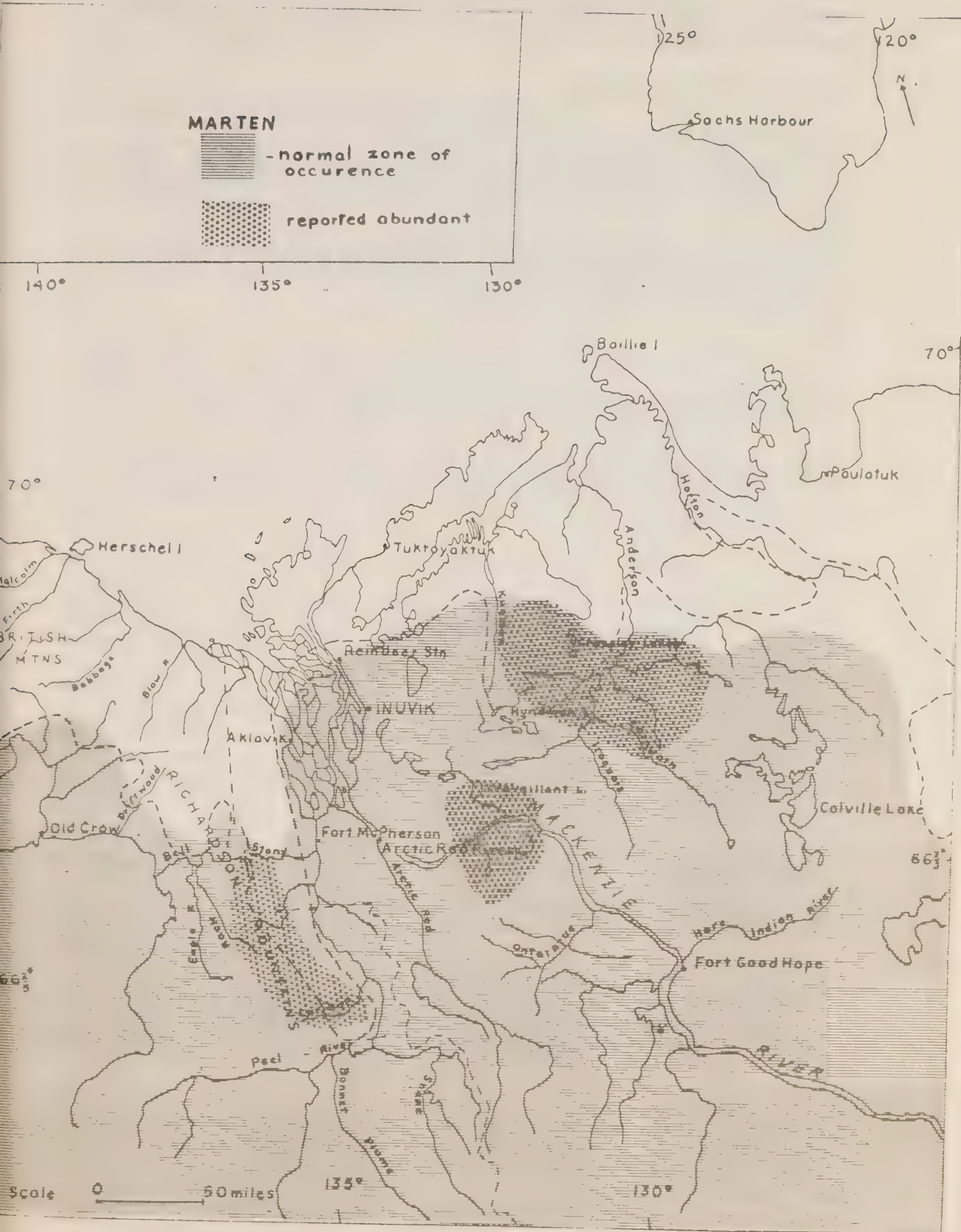
The success of the Anderson River trappers in recent years has been from taking large catches of marten, which have partially compensated for a decline in average values. Concerted efforts by large numbers of trappers can result in marten being literally "wiped out" in certain areas. This may be occurring in the Anderson River area where Tuktoyaktuk trappers have recently complained of lower catches. Scarcity of marten will probably result in abandonment of the area for a period of time, during which, recovery of marten numbers will occur, through increases in remaining stocks and in-migration from other areas.

The hunting of marten should be strictly "managed" in the Anderson River area and adjacent areas to south and south-west.

### Coloured Foxes - A potential resource which has been lacking in commercial value.

Trappers formerly trapped numbers of coloured foxes in the lower Mackenzie region. For example, at Arctic Red River in 1943-44, trappers turned in 436 Red Fox, 214 Cross Fox and 31 Silver Fox. At Fort McPherson and Aklavik substantial numbers of coloured foxes were traded during the thirties and early forties. Severe declines in prices for coloured foxes began in the 1949-50 trapping season in accordance with changing fashion trends on southern fur markets. Low prices have prevailed for coloured foxes throughout the fifties and the early sixties. As a result, little or no effort is made to trap coloured foxes and those, which are taken in traps set for other more lucrative fur species, are used in handicraft production.







While prices have revived, particularly in 1965-66, the population seems to be down in the delta plain and surrounding country.

### The Environmental Factors

Environmental factors, such as terrain and climatic conditions, are factors beyond the control of the trapper. Some artificial controls may be applied in the case of muskrat or beaver, where dams can be constructed to control water levels to regulate habitat conditions. This has been carried out successfully in northern Manitoba and Saskatchewan. Some inconclusive experiments in the construction of dams were carried out in the Fort McPherson area, by a game warden in the late 1950's, but no experiments are known to have been carried out by individual trappers.

Local trappers in the delta have expressed an interest in damming lakes to improve muskrat habitat, but they want the government to carry out the experiments. The game officer at Aklavik indicated in 1966, some trappers were prepared to assist through labour contributions.

A change in environmental conditions may result in the abandonment of an area by a fur species, or a heavy die-off. Extensive forest fire damage east of the Eskimo lakes, is believed to have destroyed good marten habitat.

Some lakes may support high populations of muskrats, while others because of depth, lack of plant foods, etc. may support small numbers. The effects of floods, such as the one which occurred in the delta area in 1961, have not been studied in detail, although local trappers felt that silting caused damage to muskrat habitat. Scientists on the other hand, believe silting may improve habitat.

The damming of some lakes by beaver may deepen them to an extent where they become unsuitable for muskrat. In other cases the effect may be the opposite. Local trappers felt protection of beaver was detrimental to muskrat population and many opposed the establishment of the beaver sanctuary on this basis.

While this is possibly true this remains unproven. In the past, muskrat populations have been low when beaver have also been scarce.

### Fur Resource Inventories

Efforts have been made by wildlife authorities and game management services, to develop inventory methods that would accurately reflect the status of populations of fur species. The Canadian Wildlife service, in co-operation with the Game Branch, had conducted annual surveys of beaver food caches in the delta since 1964. The surveys



are carried out during the autumn from low flying aircraft. The 1965 survey revealed an estimated 1,500 beaver colonies in the delta north of 69° North Latitude. (1)

Accurate estimates of muskrat populations can also be made in well-managed areas where staffs are adequate.

Inventories of this nature enable game officers to promote a better harvesting of species through setting quotas designed to harvest surplus animal populations.

Mink, marten and fox populations are much more difficult to assess, due to the habits of these species. With the exception of beaver and muskrat, it is almost impossible to manage a fur season so that it will prevent either over-harvesting or under-harvesting of fur resources.

### Trapping Areas

The registration of traplines and trapping areas was introduced in the Northwest Territories in 1964, in an effort to induce a measure of conservation and to protect the rights of the individual trappers. With fluctuations in fur prices, some trappers moved in and out of various areas to take advantage of price increases for some species. This occurred in the Mackenzie Delta in the forties with a rise in the price for muskrat pelts. Trappers moved into the area from up the Mackenzie, the Yukon and Alaska to the disadvantage of local trappers.

In 1948-49 registered trapping areas were blocked out by the local game warden, with the assistance of members of the Mackenzie Delta Trappers Association, which had been formed in 1946 by local trappers anxious to protect their interests. The areas were based on existing trapping activities and varied in size, with the average being about twenty-three square miles. The trapping areas covered the Mackenzie Delta, and extended up the Peel River to the vicinity of Fort McPherson.

By 1958, prices for muskrat and other furs had fallen to a point where the majority of trappers felt the size of individual trapping areas was, in many cases, too small. One point advanced for a group areas was the varied distribution of muskrats and the inequality in productivity of various areas.

The number of trapping areas registered prior to 1959, totalled 223. Of these 181 were individually registered areas, 45 were registered group areas and seven were open areas.

The majority of trappers gave up their areas in favour of a group area. A few aged Indian trappers retained their individual trapping areas. Other trappers, with a stronger sense of proprietary values, refused to surrender their areas. These were predominantly Metis and white trappers.

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(1) On the basis of the aerial surveys the delta and lower Peel River areas were divided into areas and different quotas were set by Game Officers based on the number of beaver colonies and the number of trappers in each area. Beaver seals are issued to trappers so accurate returns of the beaver take can be made by the Game Branch. In this way quotas can be increased or decreased depending on the number of beaver and the number of trappers in each area.







Some Eskimos also retained their individual areas. By 1966, thirteen individual areas remained in the delta covering a small total area.

### Trapping Areas in Existence Today

Delta Group - Aklavik, Fort McPherson, Arctic Red, Reindeer Station and Inuvik - 19,000 square miles

Tuktoyaktuk - Stanton Group - 11,000 square miles

Anderson Open Area - 6,000 square miles open to trappers from the lower Mackenzie region

Fort Good Hope trapping area - 25,000 square miles held by Fort Good Hope trappers and Colville Lake trappers. This area borders the delta and Anderson open areas.

Fifty-four Fort McPherson trappers hold licenses, which permit them to trap a group area in the Yukon, covering the southern Richardson Mountains and the Peel Plateau. Aklavik Indians, (or Inuvik), of Kutchin or Loucheux origin, if they have Chief John Charlie's permission may trap in Yukon, (Charlie is Yukon group leader). Two Aklavik trappers were trapped there 1966-67.

Aklavik trappers are permitted to trap on the north Yukon coast. Only two Eskimo trappers were active along the Yukon coast in 1965-66.

There is a considerable variance in opinion among trappers in regard to the group area. The inability to make a good living from trapping, due to fur price declines, has engendered apathy on the part of many trappers. The group area has been consistent with Indian attitudes, wherein the rights of the group or band come before those of the individual. The Fort McPherson Indians showed some hostility in respect to trapline registrations in the 1940's. (1) The Eskimo, the majority of whom are migrants into the region, also favour the group areas.

The Territorial Game Branch would like to see a re-institution of the individual trapline and areas as a means of increasing trapping efforts over larger areas and a return to greater resource utilization. Bitter opposition may be expected from full-time "employed trappers", who trap direct from the settlements and cover large areas during the open water season, through the use of speed boats and motors with large horsepower.

The fact is, that many trappers still operate from cabins erected, before, or during, the period of trapline registration and trap areas they have become accustomed to over the years.

The greatest movement of trappers occurs during the spring ratting season. Re-institution of registered areas would only become productive if some trappers could be induced to relinquish their trapping rights, and others could be induced to relocate in new areas or old areas no longer being trapped.

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(1) The Chief of the Fort McPherson group has expressed concern over the possibility of re-registration of traplines in the N.W.T., and would exclude those registering their areas from the Yukon group held by Fort McPherson trappers.



The numbers of white trappers declined rapidly, following legislation to protect resident trappers and fur price declines. White trappers were active in outlying areas on a frequently non-competitive basis with native trappers. They often supplemented their incomes by trading activities, which met the need for supplies of native trappers in outlying areas.

In heavily populated trapping areas, such as the delta proper, better-organized white trappers were serious competitors with native trappers.

In recent years, declining resident populations in the Arctic Red River area have resulted in large areas east of the Mackenzie River, being under-utilized, or not being trapped, despite the presence of game and fur resources. This is the area between the Iroquois River and Travaillant Lake.

The Fort McPherson trappers have not extended their activities to the Upper Peel River area in recent years, with the exception of one trapper. Both the Snake River region and the Hungry Lake region have not been utilized.

The Yukon coast is subject to only minor trapping activities by residents of Aklavik. This area is primarily a resource area for white fox, although seal and polar bear are also available.

In 1966, a considerable amount of effort was expended in encouraging trappers to utilize outlying areas. The local administrator at Fort McPherson and the game officers, encouraged and assisted groups of Indian trappers to move up the Peel River to Trail River and Snake River, before freeze-up, so they could lay up a supply of fish and begin trapping with the onset of cold weather.

Two Indian trappers and their families from Aklavik, were flown into the Hungry Lake area at a cost of \$900, to trap that area during the winter of 1966-67. (1)

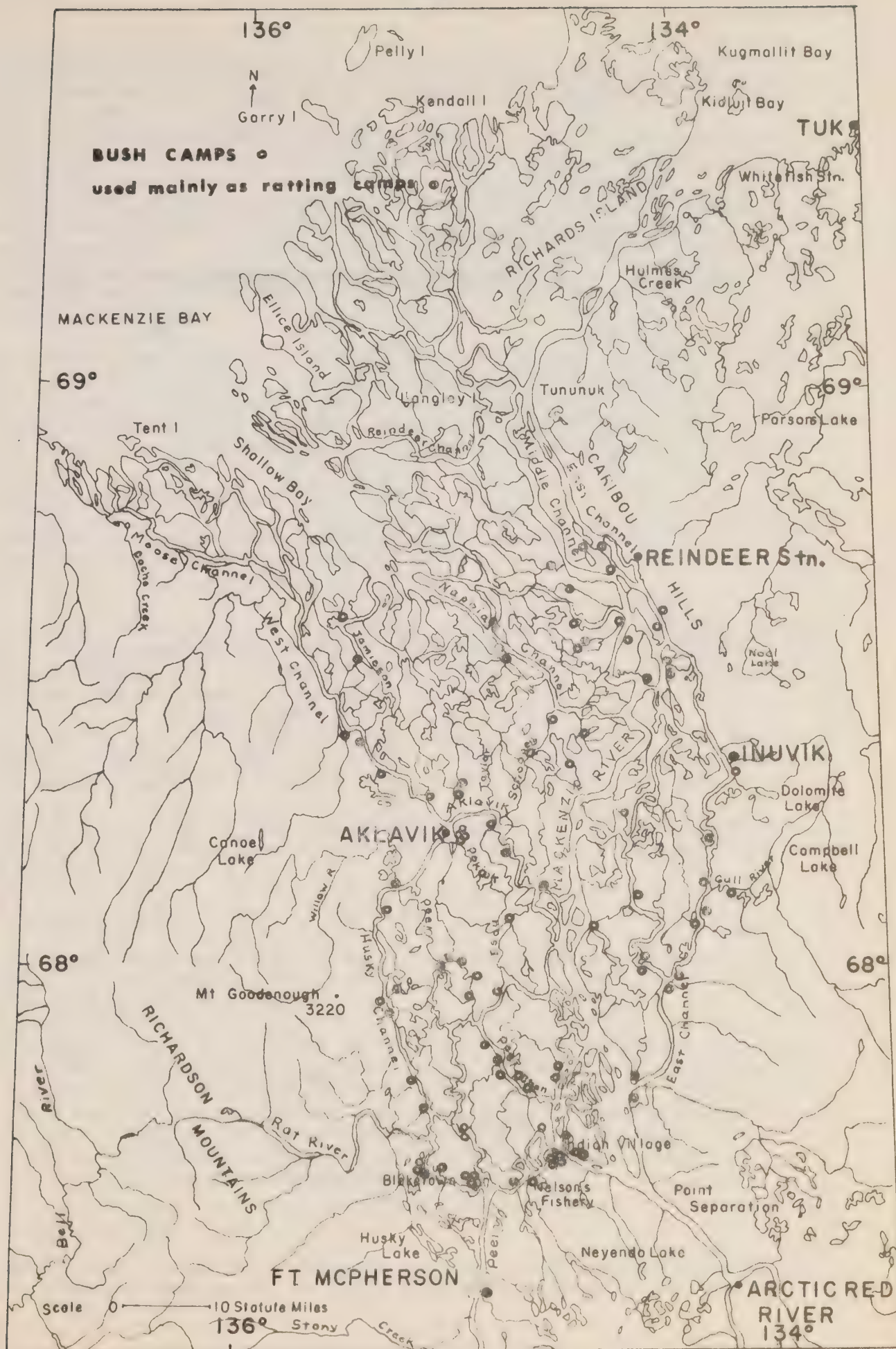
The results of these efforts will, of course, not be known until the fur returns are completed for the 1966-67 season. With the exception of aircraft charters, the expenditures in time and the provision of water transportation are not excessive in getting trappers out on the trapping grounds.

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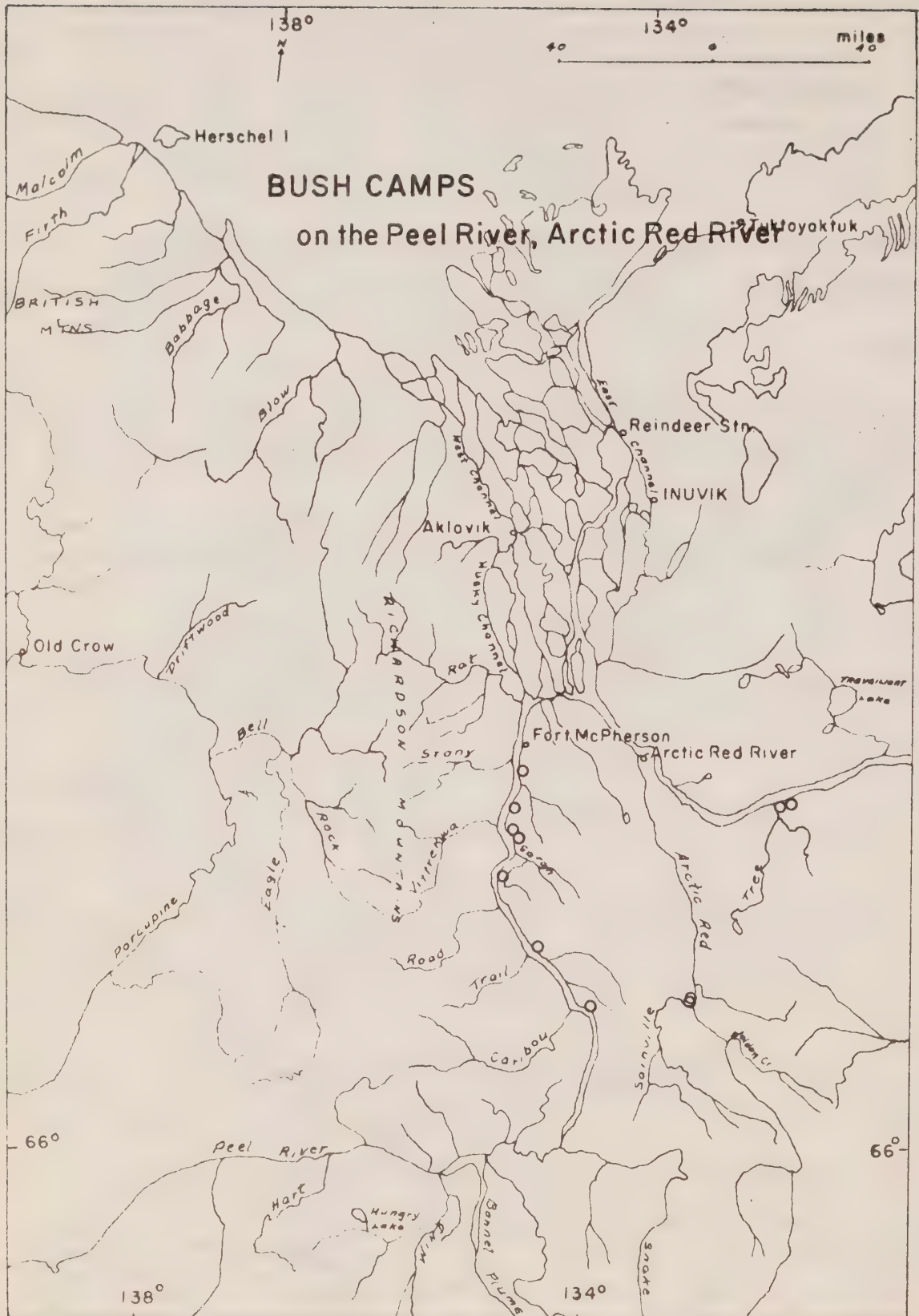
Two to three trapper-traders operated along the Mackenzie from Arctic Red to Fort Good Hope during the 1930's and 1940's and offered a source of trade goods for trappers working in the Mackenzie River area south of Point Separation.

- (1) The Hungry Lake area in the Yukon is seven days good dogsledding from Fort McPherson. Depending on travel conditions, 45 miles a day is considered to be the distance which can be covered by dog team in a day. In periods of soft snow a trail has to be broken for dog teams in wooded and semi-wooded areas.











The game wardens at Aklavik and Fort McPherson deal with trapping privileges and settle minor disputes, which occur from time to time.

The original concept of the group area has failed for a number of reasons. A primary reason has been the increased trend toward settlement living. Government agencies have promoted work programs to bolster local economies. Winter works programs and lumbering, have competed with trapping activities and reduced the amount of time spent in the bush and the area being actively trapped. A decline in fur prices has been a major factor, resulting in short-distance trapping activities from the settlements. Many trappers, while recognizing the function of school hostels, like to be near their children.

In general, open trapping rights mitigate conservation efforts on the part of individual trappers. There is little sense in protecting fur species, or attempting to manage them, if itinerant trappers can move throughout the trapping grounds. Registered trapping areas permit experimentation in conservation, as for instance, the building of dams.

### Trappers' Associations

Trappers' Associations are functional on an extremely limited basis today. Over a period of years, the Mackenzie Delta Trappers Association has given way to local organization of trappers.

In some settlements in the region, such as Inuvik and Aklavik, there are too many non-trappers in the real sense of the word, who belong to the Associations. The non-trappers frequently hinder closer co-operation between game management and active trappers.

The elected president of the Trappers' Association in Inuvik is an Eskimo, who is employed on a permanent basis. He takes part in the spring hunt for muskrat and retains a slight interest in trapping.

Game Officers meet with the Trappers' Associations in respect to changes in the trapping ordinances. Their advice is seriously sought and heeded by active trappers.

### Large Group Areas

Large group areas may be the answer to revitalizing the interest in trapping. The group leaders would have to be real leaders as well as good trappers and organizers.

Mr. Frank Bailey has expressed the opinion that a co-operative system would be a possible solution to many of the weaknesses in the existing trapping economy. This would call for the formation of a co-operative system for both the management of the group area for trapping equipment and for the marketing of furs. Considerable potential for an organization of this type appears to exist among the Central Delta trapping group, or among the Indians of Fort McPherson.

### Trapline Systems

The systems of traplines varies according to terrain and location. On the coast and open tundra, traplines follow the coastline. In some



instances, they may be extended some distance away from the coast, as is the custom of Tuktoyaktuk trappers in the Kugmallit Bay area. Inland, they are frequently laid down to take advantage of frozen lakes or rivers for easy sledding. Trappers in the Kugaluk River area have lines radiating out from a central trapping cabin.

Traplines in the delta proper, take the form of semi-circles from the trapping cabin and vary in duration of travel, from two to three days, to as little as three to five hours.

In the southern part of the mountains, it is the custom to combine hunting and trapping with traps for marten being set in wooded areas towards the timberline, while hunts for caribou are carried out in treeless valleys and mountain flats. As soon as game and fur resources show signs of depletion the policy is to move to a new area. In this way, large areas are covered in the course of hunting and trapping trips. With declines in the prices paid for marten and the concentration of caribou a short distance from Fort McPherson, there has been a decline in extended hunting and trapping trips into the mountains. In general, there appears to have been a decline in interest on the part of Indian groups in going to the mountains. A lack of interest is also apparent among the groups of Fort Good Hope, Norman and Wrigley.

Some of the Arctic Red River trappers do not center at trapping cabins, but move about the trapping grounds living in heavy canvas tents. In good marten areas, the trapper can operate on snowshoes without relying on dog team transportation. When there are plenty of marten, this is the best way to hunt.

#### Trapping Patterns, 1965-66

The majority of Aklavik and Inuvik trappers were active in the delta proper. Two trappers, a Metis and Indian from Aklavik, travelled by chartered aircraft into the Anderson River area in mid-September, and centered their trapping activities east of the Anderson River forks. Two Indian trappers from Inuvik trapped south of the west branch of the Anderson River. Both groups withdrew from the area in March, reporting an abundance of game but low marten catches. They then trapped muskrat in the delta. Two Aklavik trappers worked the Yukon coast, hunting seal and trapping in the vicinity of Herschel Island.

Thirteen trappers resident in the central portion of the delta, between Reindeer Station and Shallow Bay, trapped from their cabins in the delta and along the east side of the delta.

During the winter of 1965-66, Tuktoyaktuk trappers worked the coastal areas between Pullen Island and Nicholson Point.

The Wolkis trapped from Baillie Island along the coast and on the lower region of the Horton River. Two trappers from Tuktoyaktuk worked the area along the east side of the Eskimo Lakes, while another trapper worked from a base at the mouth of the Kugaluk River to the Crossley Lakes. In previous years, Tuktoyaktuk trappers operated from the forks of the Anderson River but recently low marten catches have discouraged them from doing so.



Fort McPherson trappers were active in the southern portion of the delta, the lower reaches of the Peel River and the west side of the Peel Preserve. The drainage systems of the Peel Plateau received some attention from trappers. One trapper, based at the Caribou River, normally traps between the Caribou River and Margaret Lake in the Yukon. In good fur years, in the past, trapping parties crossed from the Trail River to the Hungry Lake region west of the Wind River, but this has rarely occurred in recent years except for quick trips.

Four Arctic Red River trappers trapped in the vicinity of Bernard Creek, well up the Arctic Red. Two trappers were trapping in the area between Travaillant Lake and Point Separation. Three trappers trapped the Tree River drainage system. One trapper worked in the Fort Good Hope area west of the Mackenzie River. The remaining trappers trapped over short distances from Arctic Red River. Some muskrat trapping and shooting was carried on along the lower reaches of the Arctic Red River and in an area called the "little delta" east of Point Separation.

The majority of trappers tended to trap in areas they used in previous years. The cost of aircraft charters is a deterrent in going into outlying area where the fur potential is unknown. In recent years, the proximity of caribou herds to Fort McPherson has been a factor in reducing extended trapping trips by the Fort McPherson trappers.

Both the Fort McPherson and Arctic Red River people have distinct advantages over trappers who concentrate their activities in the delta proper, through the existence of a greater abundance of game in their hunting and trapping areas. Delta trappers and those of Aklavik go to the Richardson Mountains for caribou. Tuktoyaktuk trappers are forced by the general scarcity of game, to hunt away from the Arctic coast, hunting some distance out on the sea ice or south-east of the Eskimo Lakes. Inuvik trappers are able to secure a few moose along the east branch of the Mackenzie River.

In 1964-65, there were an estimated fourteen trappers active in the Anderson River open area. This included trappers from Inuvik, Aklavik and Tuktoyaktuk. The usual procedure has been to leave the area at the close of the marten season in March, or before the advent of poor ground travel conditions, in the case of Tuktoyaktuk trappers.

### Methods of Trapping

Trapping methods vary according to the species to be trapped. The marten is commonly taken in cubby sets or on pole sets, using a number one-and-a-half trap. The bait used is rabbit, squirrel, fish oil, muskrat musk or beaver castor. Trappers claim that a scrap of burnt rabbit fur will attract marten.

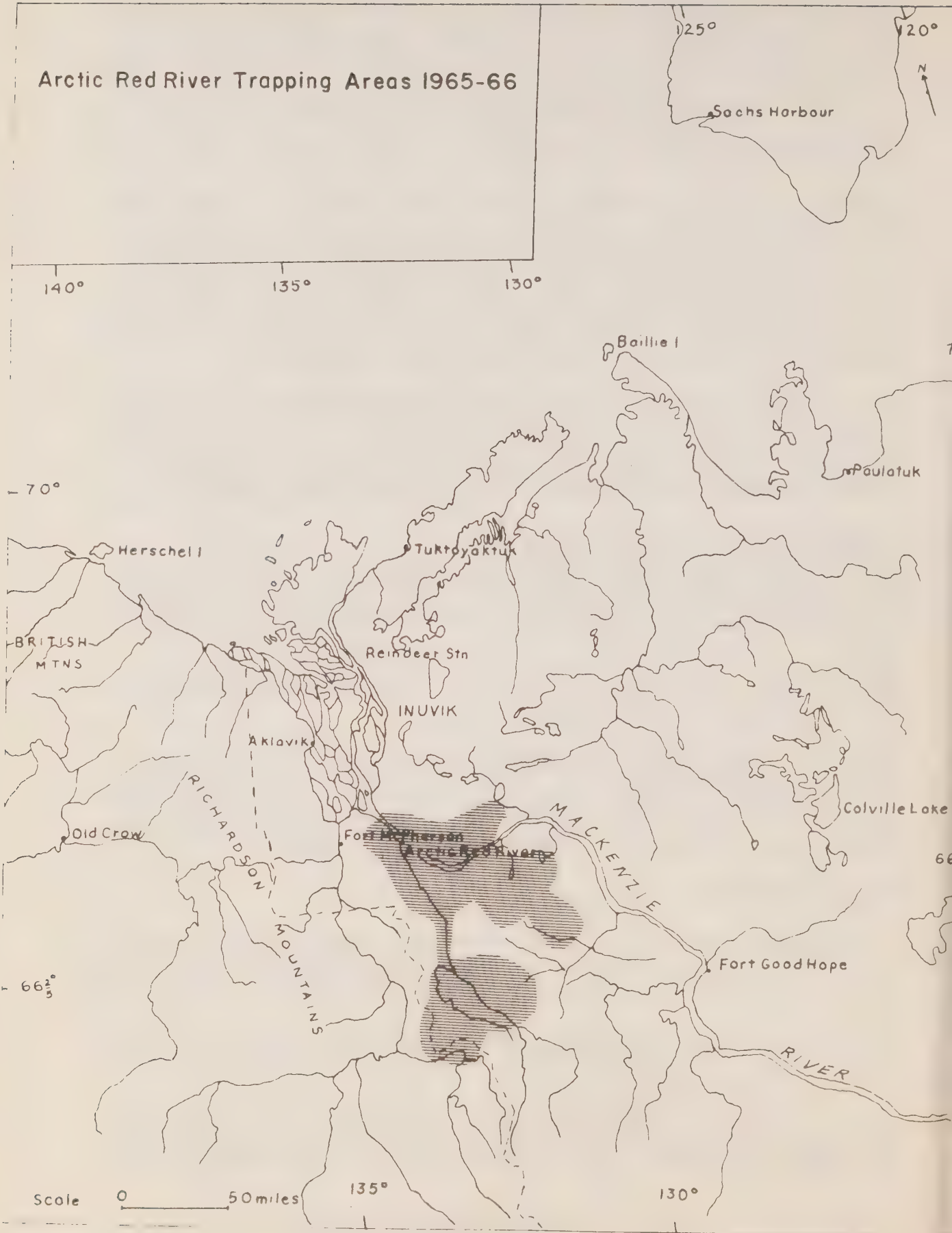
Blind sets are used in trapping mink. Various baits, ranging from fresh fish to beaver or muskrat musk in fish oil, are used with number one-and-a-half to number two traps.

For lynx, trappers prefer to use snares, which are inexpensive and easily set rather than traps. This species may also be taken in cubby sets or log-crossing sets.

Beaver require a large trap of number three or four size. The Game Branch

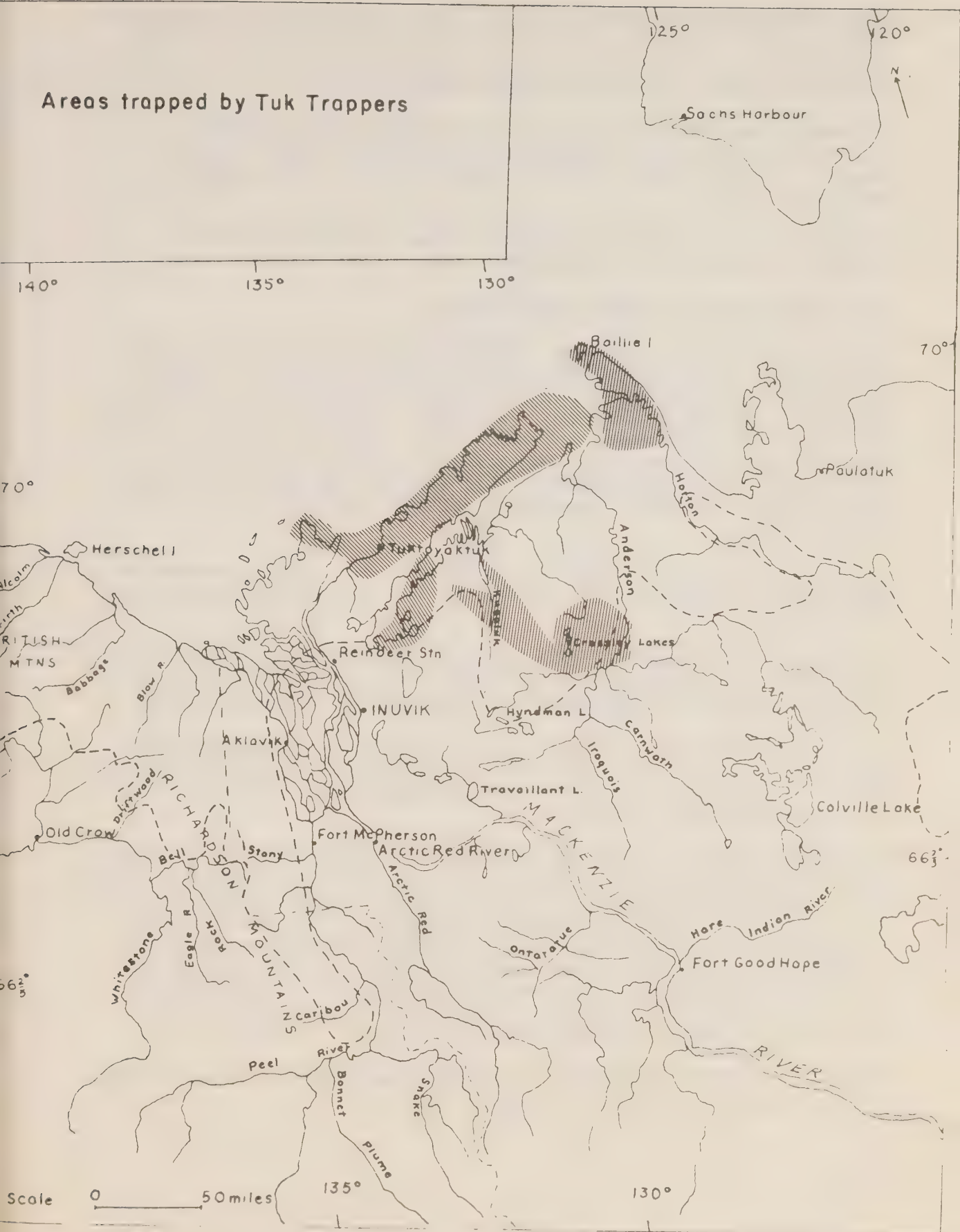


# Arctic Red River Trapping Areas 1965-66





# Areas trapped by Tuk Trappers





has promoted the use of the Connibear trap in taking beaver. Many local trappers prefer to shoot beaver and avoid the work involved in making sets under the ice. The bait used in trapping beaver is fresh willow or alder cuttings, in pole trap sets under the ice.

The number one trap is in use for taking muskrat in the push-ups. As with beaver, shooting has become the preferred method of taking this species. A skilful hunter can take muskrat by head shots and avoid damage to the pelt.

The number one and a half, or number two long spring or jump trap, is used in trapping fox. A variety of meat or fish baits are used.

#### Use of Aircraft in Reaching Trapping Areas

The owner of the small aircraft chartering service at Inuvik, estimates that trappers spend approximately \$4,000 annually on aircraft charters to reach trapping areas. Inuvik and Aklavik trappers use aircraft more extensively than other trappers. The initial outlay in getting charter aircraft to Fort McPherson, Arctic Red River or Tuktoyaktuk is prohibitive in many cases. In some instances, trappers at these points are able to use aircraft, which touch down on other business, but this is infrequent and more than one load is required to get the trapper and his gear to a trapping area.

At Inuvik, trappers use aircraft as a form of taxi service, between the settlement and trapping camps, during the spring muskrat trapping season in the delta. (1)

The cost of an air charter, from Inuvik to the Anderson River, is \$128 by Cessna 180, with a pay load of 800 pounds. Three trips were required by two Aklavik trappers, who worked as a team during the 1965-66 season.

Once at the more distant trapping areas, trips to the settlements for the Christmas season rapidly increase the costs of trapping outlying areas. The two Aklavik trappers mentioned above, made two trips by air into the settlement at Christmas.

Marten may suddenly abandon an area where they were previously abundant. This was reported to have occurred in the southern part of the Peel Plateau in the winter of 1965-66, by an Indian trapper. Considerable experience is required on the part of trappers to be able to follow the cyclical trends of fur species and adapt their trapping programs to changes in numbers and availability. Many trappers in trapping only a few species fail to adequately harvest the over-all fur resources of the areas in which they trap. This can readily be observed in assessing the fur returns of individual trappers working in the lower Mackenzie region.

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(1) A taxi owner at Inuvik has a bombardier and provides transportation to trappers on the east side of the delta.



Anderson River areas trapped by Aklavik  
Inuvik trappers 1965-66





## The Effects of Petroleum Prospecting

A variety of opinions were expressed by trappers in respect to the activities of oil companies. A large number of trails have been cut through the bush by seismic teams in the southern part of the region. The trappers of Arctic Red River attributed the scarcity of fur and game in parts of their area, to the cutting of exploration trails and disturbances resulting from seismic tests. However, travelling conditions are generally improved by seismic lines. One trapper felt that disturbances by oil companies were temporary, and in some cases improved habitat conditions for some species, (i.e., marten through increasing the grassy habitat available to rodents through exploration trails).

## Team Work in Trapping

Team work in varying combinations may be noted in hunting, trapping and fishing in the region. In addition to man and wife, brother teams and family groups, a number of partnerships and groups occur in varying forms.

There are benefits to be derived from co-operation between trappers. Individual trappers are often unable to gather together all the supplies necessary for trapping. A pooling of resources permits trappers to trap more effectively, as well as providing a measure of security and company. Younger trappers gain from the experience of older trappers.

It is common for two men, with or without their families, to share a trapping area. Most frequently this consists of two Indians, two Metis or two Eskimos. However, there are Indian, Metis partnerships. Local white trappers are more individualistic and partnerships are less observable. This is partly due to the small number of white trappers in the region.

At Tuktoyaktuk, the trappers trapping west from Tuktoyaktuk to Pullen Island, travel as a group, both for security and company. Individuals in the group set their own traps and each markets his own catch.

Partnerships are of some importance in trapping outlying areas where aircraft charters are expensive.

## Women Trappers

Thirteen women were listed in the fur returns for Fort McPherson in 1963-64. The majority of these were involved in muskrat trapping and shooting, but three of the women also turned in other species, including marten and mink. Sixteen women were listed as trappers in the Aklavik fur returns. The majority were Eskimos.

Participation of women in trapping activities at Tuktoyaktuk was limited to one person. No women were listed as trappers among Inuvik trappers.

## Income from Trapping

In recent years, the incomes from trapping have been low in keeping with declines in the prices for the fur species available in the region. The range of species being taken has also declined and has reduced the income



Income from Furs Sold to Local Traders in Mackenzie Delta

1961-62

	<u>Indian</u>	<u>Eskimo</u>	<u>White</u>	<u>Total</u>
<u>ARCTIC RED</u>				
*Trappers	32 (32)	-	2 (4)	34 (36)
Income	\$12,012	-	\$ 323	\$ 12,335
Ave. Income	375	-	\$ 162	\$ 360
<u>MCPHERSON</u>				
* Trappers	98 (98)	-	11 (16)	109 (114)
Income	\$34,882	-	\$ 3,391	\$ 38,273
Ave. Income	356	-	\$ 308	\$ 351
<u>AKLAVIK</u>				
*Trappers	50 (52)	68 (80)	33 (36)	151 (168)
Income	\$14,396	\$20,494	\$23,463	\$ 58,353
Ave. Income	288	\$ 301	\$ 711	\$ 386
<u>INUUVIK</u>				
*Trappers	13 (13)	37 (56)	21 (26)	71 (95)
Income	\$7,678	\$31,167	\$13,872	\$ 52,717
Ave. Income	590	\$ 842	\$ 660	\$ 742
<u>TOTAL DELTA</u>				
*Trappers	193 (195)	105 (136)	67 (82)	365 (413)
Income	\$68,968	\$51,661	\$41,049	\$161,678
Ave. Income	357	\$ 463	\$ 613	\$ 443

\* First figure represents the number of persons who sold fur to local traders.

Bracketed figure represents the total numbers of holders of General Hunting Licences.

Average incomes are based only on the number of persons who sold fur to local traders.



General Hunting Licences Issued 1957-58 to 1963-64

<u>Settlement</u>	<u>57-58</u>	<u>58-59</u>	<u>59-60</u>	<u>60-61</u>	<u>61-62</u>	<u>62-63</u>	<u>63-64</u>
Inuvik		27	27	77	95	143	151
Aklavik	136	195	204	172	168	186	180
Fort McPherson	102	89	93	87	114	141	145
Arctic Red Reindeer Station	33	27	29	31	36	29	34
Tuktoyaktuk	5	3	10	16	18	17	14
Fort Good Hope	51	60	65	50	57	66	68
Sachs Harbour	123	118	130	139(est)	132	130	119
	13	15	19	21	24	20	23

Average Income from Trapping 1957-58 to 1963-64

<u>Settlement</u>	<u>57-58</u>	<u>58-59</u>	<u>59-60</u>	<u>60-61</u>	<u>61-62</u>	<u>62-63</u>	<u>63-64</u>
Inuvik	168	254	190	789	686	649	670
Aklavik	282	254	190	303	349	395	287
Fort McPherson	195	394	385	336	288	319	209
Arctic Red	153	240	308	241	243	290	404
Tuktoyaktuk	166	328	129	158	205	328	401
Fort Good Hope and Colville Lake	237	319	329	342	304	384	582
Sachs Harbour	3,036	1,728	1,254	3,811	920	2,641	1,167

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- (1) Trappers are required by the N.W.T. game laws to have a general hunting licence, which is for hunting and trapping. These are issued free to Indians and Eskimos. A number of general license holders do not necessarily trap, although they do hunt big and small game as well as birds.

Many license holders rarely hunt and many never trap for years on end except for perhaps a dozen or so rats. Figures showing average incomes are therefore somewhat misleading.

- (2) The last three settlements are included for comparative purposes.



potential.

From the evidence available, it is impossible to segregate various groups, on an ethnic basis, as being superior or inferior trappers. The Indian and Eskimo groups spend more time in hunting country food and do not appear as highly organized as white trappers in combining trapping with part-time or seasonal employment.

Certain trappers of all groups demonstrate an interest in trapping outlying areas providing prices are good and they have sufficient grubstakes.

There is a small nucleus of energetic and capable trappers in each settlement, who realize better than average incomes. For example, the following numbers of trappers realized incomes of over \$1,000 in 1963-64.

<u>Inuvik</u>	<u>Aklavik</u>	<u>Fort McPherson</u>	<u>Arctic Red</u>	<u>Tuktoyaktuk</u>
17	10	6	5	10

It is interesting to note that in the Aklavik group there were two incomes in the \$3,500-\$4,000 dollar range, five in the \$4,500-\$5,000 range and one income of \$9,500. These were all trappers who went to the Anderson River area for marten. Their expenditures were, of course, greater than those who remained in the delta, since they chartered aircraft to reach the trapping grounds.

In the Inuvik group there were two incomes in the \$3,000-\$3,500 range, one in the \$4,000-\$4,500 dollar range and one income of \$5,800. The latter two trappers went into the Anderson River area for trapping.

Tuktoyaktuk trappers also realized increased incomes from trapping in the Anderson River area.

Trappers with high incomes, of course, raise the average income from trapping. At each settlement there are large numbers of trappers who realize very low incomes from trapping.

Some of the better trappers have been able to successfully combine summer employment with winter trapping. (1) This is particularly true in Inuvik and Aklavik, where opportunities for casual employment during the

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The number of white trappers is too small and unevenly distributed to provide a sufficient sampling for comparative purposes.

- (1) The term "part time" trapper may be applied to large numbers of trappers from Aklavik and Inuvik, who trap muskrat for short periods in the spring.



summer are more available than at the other settlements.

The poorer trappers include trappers with extensive experience, but generally lacking in ability, and the younger age group who **fail** through lack of ability or initiative and/or equipment. Trappers in the younger age groups tend to remain within the extended family unit on the trapping grounds, rather than exploring new and more distant areas.

In the Fort McPherson areas, there are number of older trappers, who make very creditable showings as trappers despite being in their sixties and seventies.

A program is needed to encourage and assist younger trappers to move into new areas. This may result from the attempts of game officers and administrators to encourage trapping of more remote regions. Adult education programs carried out during the Christmas and Easter holiday seasons, in the form of films on trapping methods, demonstrations on proper pelt handling etc., would be a form of assistance.

Trapping as a status appears to suffer undue criticism in the region, on the grounds that trappers form an unproductive part of society. Some attempts are needed to revive the prestige of the trapper in the region. Trapper festivals have been successfully introduced in other areas.

#### Fur Season 1963-64

<u>Location</u>	<u>Number of Trappers Taking this species</u>	<u>Total Number of Trappers</u>
<u>Marten</u>		
Fort McPherson	40	123
Arctic Red	27	34
Aklavik	10	138
Inuvik	22	97
Reindeer Station	1	10
Tuktoyaktuk	15	51

<u>Mink</u>		
Fort McPherson	68	123
Arctic Red	25	34
Aklavik	89	138
Inuvik	60	97
Reindeer Station	8	10
Tuktoyaktuk	8	51



<u>Muskrat</u>	Number of Trappers taking this species	Total number of trappers
Fort McPherson	114	123
Arctic Red	16	34
Aklavik	129	138
Inuvik	80	97
Reindeer Station	9	10
Tuktoyaktuk	3	51

White Fox

Tuktoyaktuk	46	51
Reindeer Station	1	10
Aklavik	10	138
Inuvik	14	97

Number of Trappers

	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
Inuvik	71	90	97	107
Aklavik	151	174	138	137
Fort McPherson	109	129	123	123
Arctic Red River	34	30	34	30
Reindeer Station	16	10	10	10
Tuktoyaktuk	40	45	51	44

Income Range of Trappers 1964-65

	<u>Inuvik</u>	<u>Aklavik</u>	<u>Fort McPherson</u>	<u>Arctic Red</u>	<u>Tuktoyaktuk</u>
less than \$100	38	35	27	14	22
\$100 - \$500	42	79	79	10	15
\$500 - \$1,000	16	14	15	1	3
\$1,000 plus	11	9	2	5	4

Utilization of Fur Species

In spite of the number of species available in the region, there are a large number of trappers who take a small number of species and these may be considered as part-time trappers. Women, aged trappers, and persons who spend the majority of their time in the settlements, belong in this category.

Fur Season 1963-64

	<u>Number of Trappers trapping three species or less</u>	<u>Number of Trappers taking more than three species</u>	<u>Total Number of Trappers</u>
Fort McPherson	90	33	123
Arctic Red	15	19	34



	Number of Trappers trapping three species or less	Number of Trappers taking more than three species	Total Number of Trappers
Aklavik	105	32	137
Inuvik	55	42	97
Reindeer Station	7	3	10
Tuktoyaktuk	42	9	51

Fur Season 1964-65

	Number of Trappers trapping three species or less	Number of Trappers taking more than three species	Total Number of Trappers
Fort McPherson	63	60	123
Arctic Red River	8	22	30
Aklavik	97	40	137
Inuvik	65	42	107
Reindeer Station	3	7	10
Tuktoyaktuk	<u>27</u>	<u>17</u>	<u>44</u>
Total	253	188	441

With the exception of Tuktoyaktuk trappers, the majority of trappers taking less than three species, trapped muskrat as the major species. The Tuktoyaktuk trappers, taking less than three species, took white fox or seal.

There are, of course, additional benefits which accrue from trapping. Muskrat, beaver and lynx provide substantial amounts of meat for human consumption. For example, in 1961-62, muskrat alone contributed approximately 140,000 lbs. of meat for use as food for both humans and sled dogs. Muskrat carcasses in excess of immediate requirements are dried in the spring for use later in the summer.

The carcasses of mink, marten and fox are used as bait or fed to sled dogs and supplement other sources of dog food.

Small amounts of income are obtained through the sale of muskrat carcasses in the settlements. These find sale among permanent-employed native residents, but are not purchased by non-permanent whites.

Damaged pelts, which cannot be sold as furs, are kept for personal use or used in the manufacture of handicrafts.

The Problem of Trapping the Hinterland Areas

Historical evidence points to a decline in the use of outlying resource areas. The trend towards settlement living has been going on for some decades in the lower Mackenzie region. This has accelerated with a decline in fur prices and increased government activities, over the past decade. The areas close to the settlements are undergoing, what appears to be, over-exploitation of the fur and game resources, by settlement-based hunters and trappers.



Some long-time northern residents have advocated permitting white trappers to re-enter the territories and occupy areas, which are not being utilized by resident populations. They feel competition from white trappers would increase the incentive of native trappers, and have educational values in showing the returns to be gained by greater efforts in trapping. However, statistics show declines in trapping as a vocation in other parts of Canada.

### Costs of Trapping

It is rather difficult to assess the true costs of trapping in the region. Capital equipment such as traps, transportation etc., all have different life spans which vary from individual to individual. Sled dogs are frequently acquired from relatives or friends at little or no cost.

Much of the equipment used in trapping is also used in hunting and fishing. Minor economies may be realized from location, for example, access of Tuktoyaktuk trappers to scrap wood from DEW Line sites for the construction of sleds or trapping shacks.

The trappers, who work the Anderson River area, require more complete sets of trapping equipment than close-in settlement trappers, who may share or borrow a relative's equipment.

In general, considerable care is expended in looking after trapping equipment, due to the long tradition of trapping, and the expense involved in renewing equipment. (1)

Store records indicate a low renewal rate on equipment. Rifles were seen which were over twenty years in use and still in good condition.

The trappers at Fort McPherson estimate the life span of a toboggan to be two to three years. A few of the older trappers build their own toboggans from local birch, which is carefully seasoned and laboriously shaped. They feel these are much superior to imported oak toboggans which have a tendency to become brittle in low temperatures.

An extensive list of supplementary items are not included in this list. Annual expenditures in gasoline and outboard motors, ammunition, human food, dog food, etc., have not been included also for very obvious reasons, that individual estimates vary widely. As can be seen from the above list, a trapper to operate effectively must invest in substantial amounts of capital equipment.

### Maintenance of Dog Teams

There has been a great deal written about the cost of maintaining dog teams for the purpose of trapping. The proper maintenance of a dog team is a time-consuming and burdensome chore. However, it must be remembered that fish forms part of the staple diet of those involved in the subsistence economy and that summer and autumn fishing is a source of both human food and dog food. Coarse fish, which otherwise might be wasted, can be fed to dogs.

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(1) Low incomes from trapping affect ability to renew equipment.



Sample Costs of Basic Hunting and Trapping Equipment

<u>Traps *</u>	<u>Inuvik</u>	<u>Aklavik</u>	<u>Tuktoyaktuk</u>	<u>Fort McPherson</u>
No. 1			\$ 11.25 doz.	
1½			15.50 doz.	
2			24.60 doz.	
			mink	
3			43.20 doz.	
			beaver	

Rifles

30.30	99.95 (5)	95.00 (2)	95.00	99.50 (4)
303		25.92 (2)		
22	23.95 (15)	29.95 (20)	29.95 (3)	20.00
	single shot	repeater	repeater	single shot
12 gauge	129.95 (4)	29.95 (2)	90.00 (6)	28.95 (1)

Ammunition

30.30	4.98	4.70	4.60	4.50
303	5.98	5.70		
.22	.75	.85	.95	.80
.12	4.70	3.75	3.75	3.75

Canoes

14'		\$250.00 (1)		
18'		325.00 (4)		
22'			475.00 (1)	

Boats

Skiff 14'			175.00 (1)	
Runabouts	\$549.00 (2)			
	749.00 (1)			
Plywood				
Scow	36' plywood scow \$300.00 - materials 200 labour \$100			

Outboard Motors

3 H.P.	225.00 (2)	205.00 (5)		
5½		306.00 (1)	298.00	329.00 (1)
10	429.00 (1)	406.00 (1)	420.00	439.00 (4)
15				529.00 (2)
18	529.00	510.00 (2)		695.00 (1)
35	649.00 (4)			
40	749.00 (3)			

(1) Numbers in brackets signify numbers reported sold in 1965.

\* Minor variations are shown in the prices of traps in different settlements.



Sample Costs of Basic Hunting and Trapping Equipment

	<u>Inuvik</u>	<u>Aklavik</u>	<u>Tuktoyaktuk</u>	<u>Fort McPherson</u>
Dog food				
Miracle				
Whip		2.75 a 100	1.00 (5 lb.)	18 cents a lb.
Tallow	.28 (1b.)	.25 (1b.)	.25	.25
Oats				
Toboggans		45.00-\$65.00 (individual boards \$17 ea.)		
Skidoos		935 (2)	\$975 (3)	
Snow Cruiser	\$900 (3)		825 (3)	
Nets				
3 lb.		25.00	25.00 (33)	\$30.50 (39)
4 lb.		23.00	22.00	36.00 (10)
5 lb.				45.00 (10)
Snare Wire	15¢ (345)	15¢ (300)	15¢ (200)	15¢ (400)
Tent Canvas	1.00 yd.	1.00 yd.	1.00 yd.	1.00 yd.
Canoe Canvas		3.95 yd.		
Harness Webbing	35¢ yd.	35¢ yd.	35¢ yd.	35¢ yd.
Snowshoes	\$20-\$24 depending on length 4-6'			

Cost of a Basic Trapping Outfit

The following basic trapping outfit must be considered as hypothetical based on the equipment now in use in the region.

	<u>Cost</u>	
120 muskrat traps	\$112.35	on the tundra
2 dozen marten traps	31.00	fox traps would
1 dozen mink traps	24.60	be the major trap
1 dozen beaver traps	43.20	used.
4 rolls snare wire	.60	
22 rifle	29.95	
30.30 rifle	95.00	
Scow	300.00	
Ratting canoe	250.00	
10 H.P. motor	406.00	
7 dogs	200.00	the trapper who uses
		a skidoo faces a
		larger initial investment
dog harness	50.00	
2 fish nets	48.00	
snowshoes	24.00	
toboggan	65.00	
tent	48.00	
axe	5.00	
	<u>\$1,732.70</u>	



Annual Ammunition Sales based on 1965 salesAklavik

<u>Type of Ammunition</u>	<u>Sales</u>	<u>Price/Box</u>
30-30	235 boxes (20 to a box)	\$4.70
303	50 boxes (20 to a box)	5.70
22	3,600 boxes (50 to a box)	75¢-85¢
12 gauge	9 boxes (25 to a box)	3.50
16 "	7 boxes (25 to a box)	3.25
20 "	70 boxes (25 to a box)	3.50

Fort McPherson

<u>Type of Ammunition</u>	<u>Sales</u>	<u>Price/Box</u>
30.30	236 boxes (20 shells)	\$4.50
.22	1,200 boxes (50 shells)	.80 cents a box
.12 gauge	146 boxes (26 shells)	3.75
.16 "	94 boxes (25 shells)	3.59
20 "	50 boxes (25 shells)	3.25

Tuktoyaktuk

<u>Type of Ammunition</u>	<u>Sales</u>	<u>Price/Box</u>
30.30	100 boxes (20 shells)	\$4.60
30.06	50 boxes (20 shells)	5.50
.22	2,000 boxes (50 shells)	.95
.12 gauge	500 boxes	3.75



Fish, however, is an unsatisfactory diet for dogs working under severe climatic conditions and considerable amounts of money must be invested in dog food by those who do not have access to other resources. Attempts to produce a satisfactory cheap substitute for imported dog foods have thus far proved unsuccessful. (1) A local trader reported that rolled oats taken out on welfare issues is used extensively in feeding sled dogs.

### Mechanized Trapping

The substitution of mechanized means of transport, rather than dog teams, has been slow in the region. Skidoos and bombardiers have been used with some success by Tuktoyaktuk trappers. The initial investment in skidoos is prohibitive for many trappers. Also parts are expensive and many trappers lack the mechanical ability for maintenance of machines used under difficult conditions.

Skidoos are used extensively for settlement transportation in Tuktoyaktuk and Inuvik. The number of skidoos decreases rapidly in other settlements. Isaac Kunizzi of Fort McPherson, has successfully used a snow cruiser in hunting and trapping in the Caribou River area, where he has been able to make extensive use of trails cleared by petroleum prospecting parties. He no longer maintains a dog team.

Considerable amounts of time are expended in training lead dogs. The price of sled dogs varies considerably and can reach up to \$75 for a well-trained lead dog. At Fort McPherson the average price of sled dogs ranges between \$25 and \$35.

Some cases were noted in Fort McPherson where both the man and wife had dog teams. In these cases, both persons are active trappers. At Aklavik, a few Eskimo women use dog teams for hunting and trapping.

In one or two cases, widows have dog teams which are used for hauling wood and ice as well as being loaned to hunters and trappers in return for part of the catch.

The single hitch is used in wooded country, while the paired hitch is used on the coast. The toboggan is, of course, in standard use in the wooded country, while on the coast both the standard komatik and the Alaskan basket sled are in use.

The relative success of the Tuktoyaktuk Eskimos in owning and operating skidoos and bombardiers may be partly attributed to mechanical training on the DEW Line. General terrain and snow conditions are important factors.

In Alaska, there were 5,000 skidoos of various types reported at the beginning of 1967. The vehicles have become extremely popular among Eskimos in areas of flat tundra terrain, and provide 75 per cent of the transportation requirements in Eskimo villages, along the Bering Sea coast. Skidoos are used in hunting and trapping and as a form of intra-settlement transportation. The effective use of skidoos in hunting and trapping in

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(1) Dog food in the form of fishmeal produced in 1964 by the Industrial Division, Department of Northern Affairs retailed at 73 cents a pound and required mixing with other dog foods.



Alaska, has reached a point, that some persons feel legislation will be required for the use of mechanized transportation in hunting and trapping. Others feel that the reduced use of game meat in feeding sled dogs will counter balance the use of mechanized transportation.

One trapper, who uses a skidoo extensively for trapping in Tuktoyaktuk, felt that it would be difficult to return to using dogs exclusively after using mechanized transportation. (1)

### Outboard Motors

In a region where the open water period is short, undue delays are encountered in ordering spare parts to make repairs to outboard motors. The time taken in ordering parts may run between two and three weeks. A common complaint was that local stores in the region did not stock an adequate supply of parts. There is also a lack of organized repair services in the region. These difficulties become much greater in respect to larger boats, for which parts are not available through normal supply channels.

In a zone where silting makes it impossible to detect shoals, the use of jet motors would be a distinct advantage. Even experienced travellers face the recurring problem of broken shear pins, resulting from striking underwater shoals or other obstructions.

### Survey of Trapping Equipment

An over-all survey of hunting and trapping equipment was conducted by the survey party in 1966. Due to a lack of space, random samplings have been included for trappers in various parts of the region. The samples show very little differentiation in equipment, except in the case of Tuktoyaktuk, where some trappers possess larger numbers of traps and skidoos, which they use for both trapping and settlement transportation. It is interesting to note that at Tuktoyaktuk, the majority of trappers who have skidoos or other forms of mechanized transportation, still maintain dog teams.

### The Role of Local Traders

The increased role of government agencies in granting assistance to trappers, has in large measure, supplanted extensions of credit by store operators. The official position of the Hudson's Bay Company is that credit is available for good trappers (to the extent of \$200-300 dollars). The Hudson's Bay Company manager at Inuvik received no requests for credit during the 1965-66 season. Elsewhere in the region, Hudson's Bay Company managers indicated they did supply credit, but in limited amounts. The independent store operators also supply credit in limited amounts to permit some trappers to equip themselves with grubstakes but insufficient to permit investments in capital equipment. Credit is very difficult to obtain and with good reason. One store manager showed a large backlog of bad debts which simply had to be written off as non-collectable.

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(1) In 1966 Tuktoyaktuk local residents reported owning ten skidoos, two snow cruisers, one auto toboggan, two snowmobile bombardiers.



Examples of Hunting and Trapping EquipmentAklavik

<u>Trappers</u>	<u>No.</u>	<u>Dep.</u>	<u>Area Trapped</u>	<u>Tr. Cabin</u>	<u>Dogs</u>	<u>Skidoo</u>	<u>Boat</u>	<u>Motor</u>	<u>Traps</u>	<u>Guns</u>	<u>Nets</u>
Indian 59 Son 23	3		West Channel	none	3	none	18' canoe	10	75	303 22	2
Indian 59 Indian 29			West Channel	none	9	none	14' canoe	none	75	3030	3
Indian 70	6		John Firth's Channel	none	8	none	scow inboard		60	3030 22	4
Eskimo 24	3		Sam Arey's Place - West Channel below Aklavik	shares	6	none	canoe speedboat	18	70	3030 22	2
Eskimo 44	9		Schooner Channel	none	8	none	18' canoe	3	40	3030	1
does some hunting and fishing but never traps											
Metis 34	4		Anderson River and Delta	Anderson	8	none	scow canoe	18 5	100	3030 22	5
Metis 36	8		Aklavik Channel	Pokiak Point and Aklavik Channel	9	none	20' canoe	10	200	3030 22(2)	4
Eskimo 45 Eskimo 21 Eskimo 18			West Channel 18 miles downstream from Aklavik	West Channel	6 7	none	20' canoe 18' canoe	5½	75	3030(2) 22(2)	3
Metis 32			West Channel	Pokiak Point	7	none	scow	10	120	3030 30.06 22 shotgun	2
Eskimo 46 Eskimo 25 Eskimo 21			West Channel Yukon Coast		14	none	scow 22' canoe	10	35	3030 22	4

Age of individual trapper follows ethnic designation.



Examples of Hunting and Trapping EquipmentFort McPherson

<u>Trappers</u>	<u>No. Dep.</u>	<u>Area Trapped</u>	<u>Tr. Cabin</u>	<u>Dogs</u>	<u>Skidoo</u>	<u>Boat</u>	<u>Motor</u>	<u>Traps</u>	<u>Guns</u>	<u>Nets</u>
Indian 72 Indian 22	5	Peel River	Peel River	12	none	22' 14'	5 canoe	120	300 22	3
Indian 71 Indian 21	4	Peel River	Peel River	10	none	scow	10	80	3030 22	4
Indian 67 Indian 23	4	Peel Channel	Peel Channel	14	none	scow 14' canoes	10	145	3030 22	5
Indian 30	2	Peel River Peel Plateau	none	7	none	canoe	10	60	3030 22	2
Metis		Upper Delta	R. River	6	none	scow 12'	28 canoe	145	3030 22	3
Indian		Upper Delta Lower Peel	none	5		20' canoe	35	70	3030 22	2
Metis				7	none	scow	28	125	3030 22	4
Indian 27		Rat River	R. River	8	none	scow	18	50	3030 22	3
Indian		Rat River	R. River	18	none	scow	18	100	3030 22 12	5
Indian 65 Indian 17	8	Rat River	yes	8	none	scow inboard Ratting Canoe	12  10	68	3030 22	3

Age of individual trapper follows ethnic designation.



Examples of Hunting and Trapping EquipmentArctic Red River

<u>Trappers</u>	<u>No</u> <u>Dep.</u>	<u>Area Trapped</u>	<u>Tr. Cabin</u>	<u>Dogs</u>	<u>Skidoo</u>	<u>Boat</u>	<u>Motor</u>	<u>Traps</u>	<u>Guns</u>	<u>Nets</u>
Indian 41	5	6 mi. downstream on Mackenzie	none	6	none	Scow	10h.p.	15	30.30 .22	8
Indian 53	6	east side of Mackenzie	none	5	none	22' skiff	10h.p.	110	30.30 .22	6
Indian 27	4	23 miles down Mackenzie	none	none	none	31' scow	none	none	30.30	none
Indian 67	4	Weldon	uses	8	none	scow	25h.p.	60	30.30	4
Indian 42		Creek	Cabin						12 gauge shotgun	
Indian 54		From settlement		5	none	canoe	10h.p.	25	.22	5
Indian 29	4	From settlement		9	none	scow	18h.p.	156	30.30 .22	6
Indian 71	1	Lower Arctic Red		4	none	scow canoe	5h.p. 18h.p.	54	30.30 .22	5
Indian 31	4	Weldon Creek	uses old							
Indian 53		Across Mackenzie	cabins 6 Weldon Creek		none	canoe 18'	15h.p.	43	.22 30.30	2
Indian 36	3	Tree River	4 mi. up Mackenzie	8	none	scow canoe	3h.p. 15h.p.	200	303 .22	3
Indian 57	7	Tree River		8	none	scow 2 canoes	20h.p.	235	30.30 303 .22 12 gauge 16 gauge	10

Part time Trappers

Metis 38	Lower Arctic Red - Mackenzie	none			snow boat cruiser	18h.p.	75	.22 12 gauge	9
Metis 46	Lower Arctic Red - Mackenzie	none			scow	18h.p.	104	25.35	4

(1) Where groupings are shown these signify father-son teams or father-in-law son in law teams.

Age of individual trapper follows ethnic designation.



Examples of Trapping and Hunting EquipmentReindeer Station - Trappers living between Shallow Bay and Reindeer Station

Trappers	No. Dep.	Area Trapped	Tr. Cabin	Dogs	Skidoo	Boat	Motor	Traps	Guns	Nets
Eskimo 64	1	Delta	Residence	10	none	18'	5½	132	.303	15
Eskimo 30						canoe			3030(2)	
Eskimo 25						30'			22(2)	
Eskimo 21						schooner				
Eskimo 24	2	Delta	Residence	6	none	18'	3	50	3030	5
						canoe	3½		16	
						17'			22	
						canoe				
Eskimo 47	3	Delta	Residence	16	none	18'	3	145	303	6
						30'			12	
						scow			22(2)	
Eskimo 47		Delta	Residence	10	none	16'	3	60	303	
Eskimo 15						skiff			12	7
						2 canoes			22(3)	
Eskimo 63	8	Delta	Residence	15	none	30'	18	106	3030	7
						skiff			12	
						canoe			22(4)	
Eskimo 46	10	Delta	Residence	12	none	18'	10	80	3030	
Eskimo 21						canoe			22(4)	5
Eskimo 56	3	Delta	Residence	11	none	canoe	5	125	300	
									410	
									22(1)	
Metis 56	2	Delta	Residence	15	none	18'	6	80	303	6
Metis 24						canoe			16	
									22(1)	
Eskimo 45		Delta	Residence	13	none	16'	3	70	303	1
Eskimo 20	7					canoe			12	
Eskimo 18									22(3)	

(1) Where groupings are shown this signifies father-son or father-in-law, son-in-law groupings.

Age of individual trapper follows ethnic designation.



Examples of Hunting and Trapping EquipmentTuktoyaktuk

<u>Trappers</u>	<u>No. Dep.</u>	<u>Area Trapped</u>	<u>Tr. Cabin</u>	<u>Dogs</u>	<u>Skidoo</u>	<u>Boat</u>	<u>Motor</u>	<u>Traps</u>	<u>Guns</u>	<u>Nets</u>
Eskimo Eskimo	12	Trans from Kugluk to Crossley Lakes	yes	10	none	Dinghy	inboard	400	3030 300 22	5
Eskimo 45	7	Coastal	no	8	none	canoe	7½	100	3030 22	4
Eskimo 53	7	Inland East side Husky Lakes	no	7	yes	scow	9	200	3030 22	2
Eskimo 30	7	Coastal	none	10	yes	boat	10	100	3030 22 16	5
Eskimo 37	5	Coastal and Inland	none	8	none	boat	none	60	303 22 20	1
Indian 49	9	Coastal and Inland	none	none	bombardier boat		5	5-600 traps	3030 22 16	3
Eskimo		Inland	none	4	none	speedboat	15	100	3030 22 12	2
Eskimo 42	8	from settlement	none	11	none	boat	5	60	300 243 22 12	0
Eskimo 41	10	coastal	none	8	none	30'	20	50	3030 22	1

Age of individual trapper follows ethnic designation.



Lack of capital equipment is a major problem in the trapping industry. Lack of sufficient traps, snowshoes, rifles, tents, dogs and sleds in varying combinations, result in inefficient trapping. Traps are lost through flooding, insecure anchoring and simply through forgetting where the traps were laid. An Indian trapper on the Peel River lost his snow cruiser in 1964 through leaving it on rotting ice at break-up time. Equipment is cached in the bush and for a variety of reasons cannot be picked up. In the settlements, gambling or trading of equipment for liquor are factors which debilitate trappers.

### The Role of Government

The importance of the trapping economy in the region has been overshadowed by the development of government agencies as the main economic base, in the lower Mackenzie region. There has been a general tendency on the part of newcomers to the region, to regard trapping as an unsuitable occupation and this is reflected in the current attitudes and apathy of many trappers. A considerable gap in understanding appears to exist between administrative agencies and the land-oriented population.

The burden of administering the resource base over an extremely large area, is handled by two game officers, one at Aklavik and one at Fort McPherson and their two assistants. They receive some assistance from other agencies. (1)

The game officers are frequently much more aware of the economic needs and the problems of local populations, than administrators and other personnel, who become too involved in settlement problems, and are subject to frequent replacement.

The need for staff increases within the Game Branch in the region has been realized and attention was given to placing a Regional Officer at Inuvik. A Regional Game Officer was stationed in Inuvik in July 1966.

A more effective handling of projects by the Industrial Division could be realized through closer liaison with the Game Branch.

### Indian Affairs Branch Program to Assist Trappers

While the Indian Affairs Branch program provides assistance to Indians in several forms, the main emphasis in the lower Mackenzie region has been in the provision of grubstakes and to a minor extent in marketing furs. No advances for aircraft charters have been provided in the region. Applications for grubstakes have been critically reviewed by the Indian agent in consultation with game management officers. (2)

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- (1) The R.C.M.P. perform the functions of Game Officers at Tuktoyaktuk and Arctic Red River. An overnight game cabin is located at Tuktoyaktuk for periodic visits from Game Officers. The Game Officers have for the past two years been under the direction of a very capable Superintendent, and the field staff is younger. Great progress is expected and seems certain.
  - (2) A poor season or illness does not prohibit a good trapper from receiving further advances.



Indians have made less efficient use of the grubstake system than Metis or local white trappers. Use of the grubstake system is complicated by the fact that welfare in various forms, is also available with no repayment being required by the Indian agent. Indians have shown less inclination to trap outlying areas where good fur returns could be had.

A review of outstanding trapping advances to Indians in the summer of 1966, revealed the following information. Twenty-two Fort McPherson trappers owed a total of \$4,152.52. The largest outstanding debt amounted to \$500 and was held by the best trapper. (1)

A total of \$4,892.47 was owing from twenty-eight Arctic Red trappers trapping from Arctic Red River and Inuvik. The highest amount owed by an individual trapper amounted to \$335.

#### Forms of Assistance Available from the Department of Northern Affairs

Assistance to trappers has been handled by the Department of Northern Affairs. A number of loans have been available under the Eskimo Loan Fund. These have been used for equipment purchases, the construction of trapping cabins and aircraft charters to reach trapping areas. In 1963, six Tuktoyaktuk trappers chartered into the Anderson River country for marten trapping. Repayment of loans has been slow for a number of reasons. Some Eskimos have confused the loans with direct welfare. Others are simply not good debt risks, a fact well-known to local traders. Low productivity combined with low fur prices has also hindered repayment of loans.

Welfare constitutes a form of "grubstaking" in the spring and "autumn", and assists a number of families to return to the land for short-term periods of hunting, fishing and trapping.

#### Territorial Assistance to Trappers

The program initiated in 1961 by the Territorial Government was aimed at assisting non-Indians and non-Eskimos. These were Metis and Whites licensed to trap in the Northwest Territories. Trappers could receive loans up to a maximum of \$700 for equipment and supplies to enable them to trap more effectively. In 1963, the program was modified to permit the use of aircraft in reaching trapping areas.

This program proved to be of value in the lower Mackenzie region where some trappers made effective use of trapping advances to reach outlying areas such as the Anderson River.

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(1) The best trapper had accumulated other debts with traders and reported that he owed a total of \$1,000.



Assistance to Trappers under the Territorial Program

	<u>Number of Advances</u>	<u>Total Advances</u>	<u>Value of Fur</u>
1963-64			
Aklavik	5	\$1,575.00	\$13,603.00
Fort McPherson	2	580.00	1,565.00
1964-65			
Aklavik	2	219.03	1,129.60
Inuvik	1	300.00	3,472.00

Trapping and Education

Some attempts have been made to incorporate trapping into the educational systems in the region. An area in the vicinity of Inuvik has been set aside for trapping by school children. An Eskimo instructor was hired to instruct older children at Inuvik in 1964-65.

Absenteeism occurs in the spring season late May and June when the muskrat hunt is in full swing. While absenteeism is not condoned at Fort McPherson, make-up classes are held during the summer for children who have been absent in the spring. By way of contrast, at Old Crow in the Yukon, direct provision is made for children to take part in muskrat trapping. The school is closed and re-opens during the summer.

Social studies and science curricula contain some information as to the local animal species and trapping.

Fur Marketing Associations

Fur marketing associations have been advocated as a means of bringing about better returns from trapping. Prices paid for furs in the region show some variance depending on the locality. During periods of high fur prices, in the 1940's, a number of white, Metis, Eskimo and Indian trappers were able to market their furs in Edmonton and as far away as Seattle.

Today, very few trappers are financially secure enough to market their furs on southern markets. In 1965-66, eight trappers, two from Aklavik and six from Fort McPherson, sent furs south to outside markets. All were small shipments. Two trappers reported they received lower prices than were being quoted on southern markets and the returns did not justify the expense of shipping furs.

There are six Hudson's Bay Company stores dealing in furs as well as four private traders in the lower Mackenzie region.

Marketing associations in Saskatchewan and Ontario have been able to increase returns to trappers through effective organization of sales procedures.



The effects of introducing a marketing system warrants some examination in the region, since increased returns would stimulate fur production. A policy of advancing trappers up to 40 per cent of the value of their furs, was initiated by the Game Branch for the season of 1966-67, to permit trappers to ship furs south and avoid a lack of credit in the interval between shipping and receiving payment. This will pave the way for instituting marketing systems.

In Alaska, economists feel a long-term good price run would be preferable to establishing an elaborate and expensive marketing system.

While considerable stimulation to the trapping industries can be given through various types of assistance at the local level and through marketing systems, the problems of the fur industry must be approached on a broader basis.

A.G. Loughrey in 1961, stated that the ultimate problem in the fur industry is not one of supply but of demand. He stressed the need of increasing consumer demand in view of competition to North American furs from foreign producers and the competition from cloth and synthetic pile clothing segments of the apparel industry. He proposed a threefold approach to consumer demand, namely market research, product development and product promotion.

#### Re-establishment Loans

The question of re-establishment loans for trappers was raised in a brief presented to the Economic Council of Canada by the President of the Inuvik Trappers Council, during a visit to that community in August 1966. The purpose of the loan theoretically is to enable former trappers to become re-activated in the industry. The suggested categories of recipients include those who have been hospitalized and have lost their equipment in the interval. As has been discussed earlier in this chapter, the cost of trapping equipment is substantial.

The problem of loans to trappers is complicated by past experience on the part of administrators in attempting to revitalize the subsistence economy through loans, grubstakes, etc. Experience in this direction has been less than satisfactory.

The amount suggested by the President of the Inuvik Trappers' Council was \$4,000. On the basis of minimum capital equipment this amount appears to be in excess of requirements. While a system of loans for purchases of capital equipment is not unrealistic, there are requirements for careful organization and administration by personnel thoroughly familiar with the intricacies of the trapping industry and the attendant social implications.

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A.G. Loughrey, The Economics of the Fur Industry in Canada, Resources for Tomorrow, Conference Background Papers, Volume 2, p. 845-852, Queen's Printer, Ottawa, 1961.



FISHING, WHALING, SEALINGThe Domestic Fisheries

Fishing is a strictly seasonal occupation in the southern zone of the lower Mackenzie region, which may be defined as the Peel and Arctic Red River areas. Ice thickness, (3-5'), and intense cold in January, February and March preclude fishing activities. Hunting and to a lesser extent trapping, are activities during this period.

The spring hunts for muskrat and beaver are concluded by mid-June. A few nets are set after the rivers have cleared sufficiently of debris and silt. Fishing during this period is for immediate food needs and to provide a change from a predominantly meat diet.

During the latter part of June, the people assemble at the settlements of Fort McPherson and Arctic Red River to conclude fur trading and to await treaty payments. With few exceptions they remain in the settlements until the latter part of July when they move out to fishing sites on the Peel, Husky and Mackenzie Rivers. The availability of seasonal labour at the settlements may result in a delay in moving to the fishing sites, on the part of some families. These, and settlement families, fish within proximity of the settlements. Older members of the family tend nets. Good fishing locales are crowded with nets and thefts of fish are a common complaint at Fort McPherson.

The extreme insect hazard in July is a deterrent to fishing on a large scale.

There are a number of traditional fishing locales, which are used year after year. Three Cabin Creek, the Indian Village at the mouth of the Peel, Rotten Eye Portage, Nelson Fishery, Trail River and Satah River are among the favoured traditional locations for summer and early autumn fishing.

Herring and inconnu runs occur during July and August. Whitefish and Jackfish and suckers are also netted during the summer months.

Nets up to thirty yards in length are placed at right angles to the shore. Mesh size varies from three to five inches. Nets are placed at eddies or stream mouths. Fast water is not fished due to the quick accumulation of debris and the destruction of nets.

No fish traps are used by the Fort McPherson or Arctic Red Indians. The older Fort McPherson people are aware of their potential use having participated in the use of traps for salmon catching on the Yukon River at Dawson City and Calico.

The handling of fish is traditionally the occupation of the older women. Fish are split down the back and the backbone is removed except at the tail. Livers and entrails are separated to be used for dog food. The roe and stomachs are saved for human consumption. The fillets are scored with a knife and hung up on outdoor stages to dry. Drying takes as long as three days. The fish are then smoked for 48 hours in a



smokehouse which is constructed of slabs of spruce bark and poles. (1)  
A fire of poplar wood is used for smoking.

Fish camps range from single family units to extended family groups. In some cases summer fishing takes place at winter camps, such as Rotten Eye Portage and the Indian Camp at the mouth of the Peel. In other cases, the summer fishing location is well removed from the winter camp in a superior fishing locality.

### Baled Fish

Dried fish are baled for ease of transportation. Forty to fifty whitefish are contained in an average bale, while one hundred to one hundred and forty or fifty herring, are used to make a bale of dried herring. The weight of bales varies according to the catch and weights run from forty to sixty or seventy pounds. Dried fish are sold by the pound rather than by bale size. The price of ten dry fish for a dollar was quoted at Fort McPherson in 1966.

### Autumn and Early Winter Fishing

There is a movement into the settlements at the end of August, when children are enrolled in school and placed in the hostels. By mid-September, the trappers are dispersing to their trapping location, to avoid being caught in freeze-up and to put up supplies of fish for winter use.

Autumn and early winter fishing, carried out on rivers and lakes, is gradually being superseded by hunting and trapping activities as ice thickness increases. Autumn fishing is carried out at Neyando Lake, east of Fort McPherson, and lakes along the edge of the Peel Plateau. Trail Creek and Road River are also autumn fishing locations. Nets are poles set beneath the ice.

The presence of caribou herds on the Peel Plateau west of Fort McPherson, is relied on by the Fort McPherson people, to provide a source of food for both humans and sled dogs, in the period between Christmas and Easter.

The Arctic Red River people customarily fish close to Arctic Red River during the summer. Some fishing is carried on a short distance up the Arctic Red during late spring, at the conclusion of the spring hunt for muskrat and beaver in the Peel Preserve. Bluefish Creek is known to contain grayling. Autumn fishing is carried on at Modeste Lake. Previously, Travaillant Lake was fished in conjunction with hunting and trapping activities. An area of thin ice is known to exist on the north-east side of Travaillant Lake and was formerly a favoured fishing location for inconnu and whitefish in the late autumn and early winter.

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(1) Simpler smokehouses are made of willows boughs for making small catches. Older residents claim these are superior since air circulation is greater.



Primary Fish Species

<u>Whitefish</u>	<u>Seasonal Availability</u>	<u>Use</u>
Broad or true whitefish	- upstream runs July and August	human food
Coregonus nasus		dog food
Nelson's whitefish	- crooked backs (3-5 lbs.)	"
Lake whitefish* (Coregonus clupeaformis)	- autumn spawning period	"
Conny - Inconnu (Stenodus leucichthys)	- migrates upstream June and August	
	- widespread distribution throughout delta zone	human use dog food
Northern pike (Esox lucius)	- widespread distribution in lakes and ponds	principal use is as dog food
River Herring (Leicichthys laurettae)	- taken at Aklavik and Arctic Red in October and November on downstream migration	human use dog food
Lake Herring (Leicichthys artedi)	- throughout the region during seasonal runs	human use dog food
Saltwater Herring Clupea harengus	- coastal areas - summer	human use dog food
Ling or Loche	- occurs in lakes and in large and small streams	taken along with other species in nets - also by jigging late autumn, early winter
		used for dog food livers and roe used for human consumption

\* Jumbos are whitefish over 4 pounds

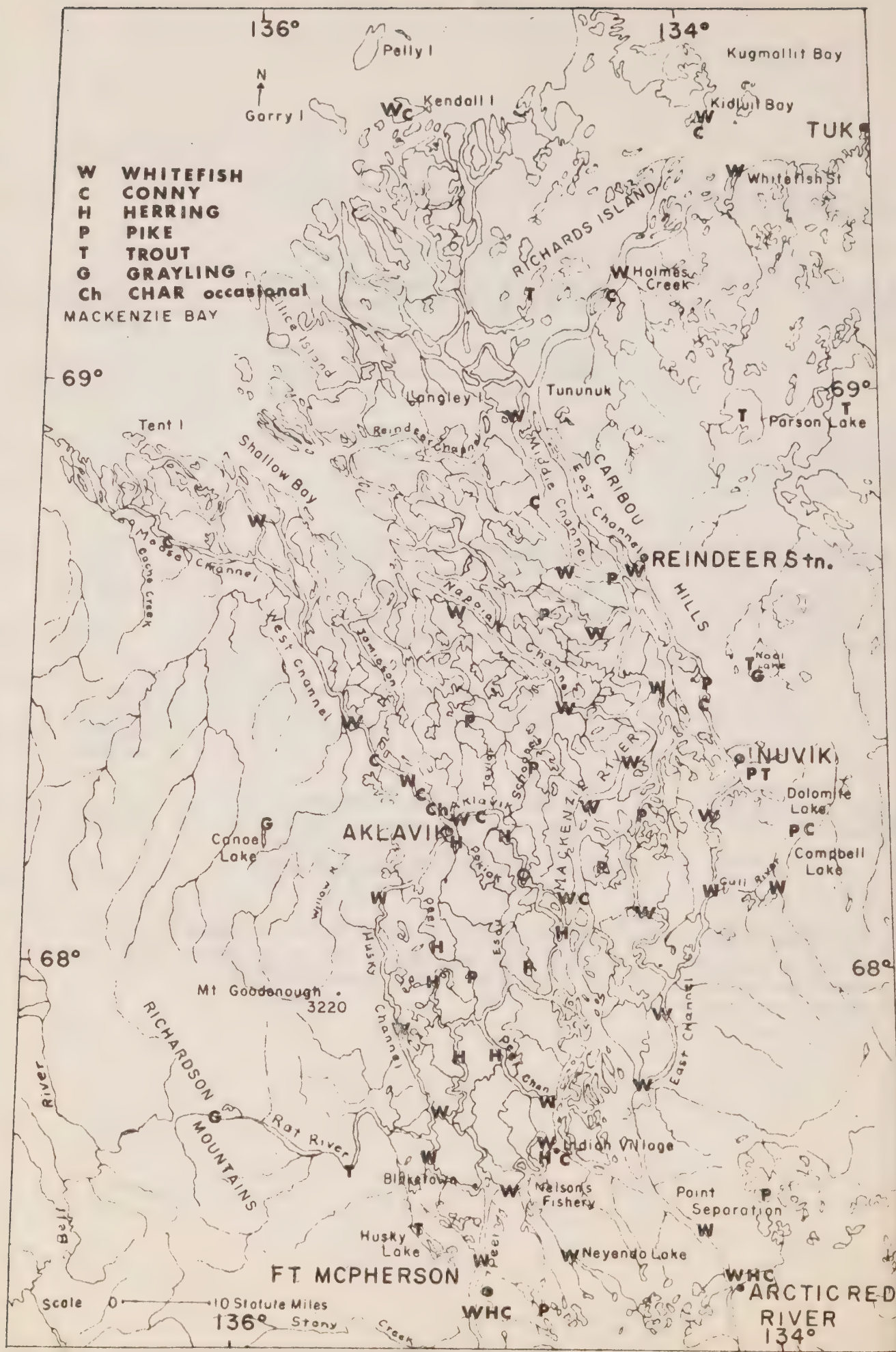


Secondary Fish Species

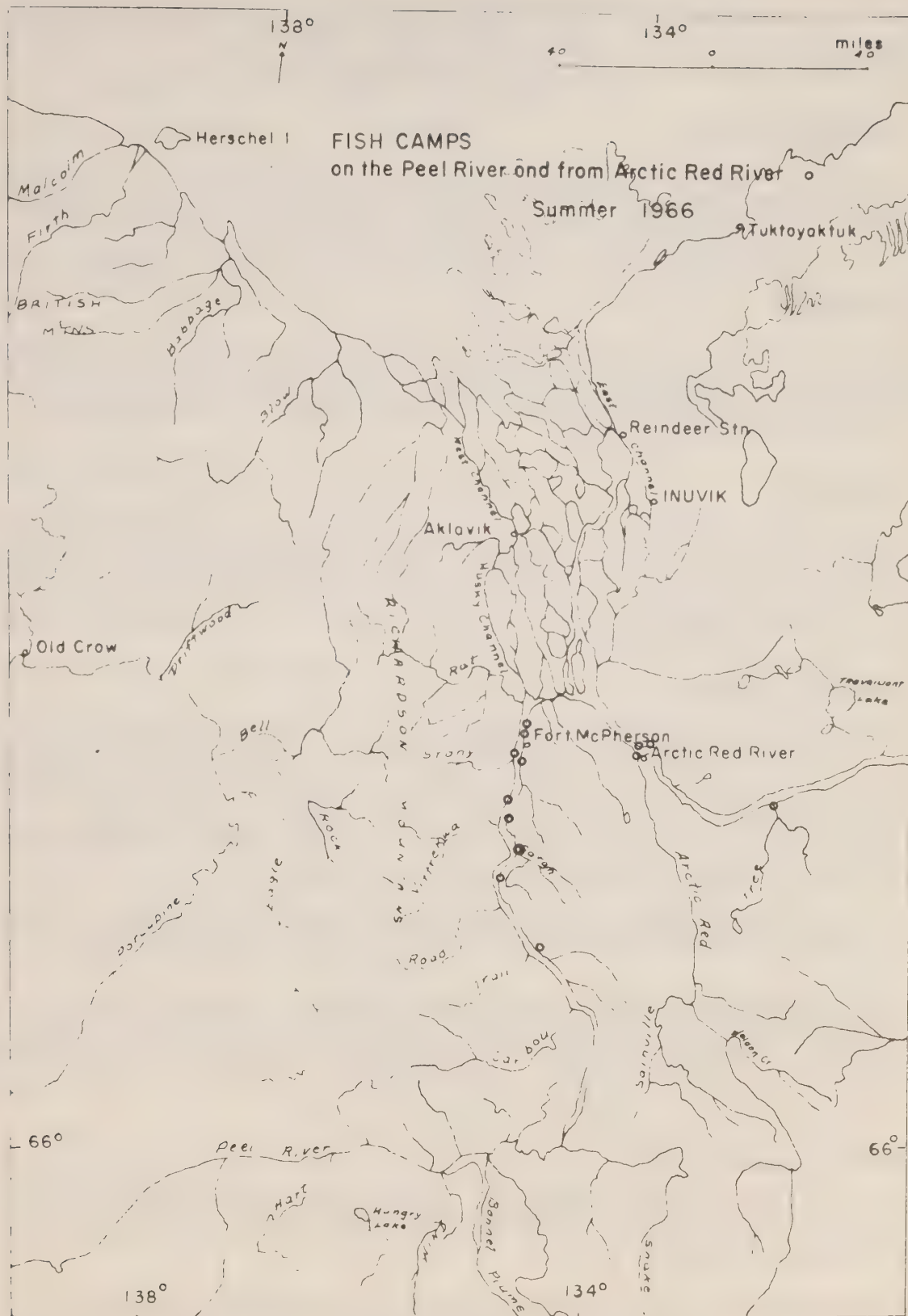
<u>Species</u>	<u>Seasonal Availability</u>	<u>Use</u>
Arctic char (Salvelinus alpinus)	occurs in west branch in spring and autumn, a few are taken in nets at Aklavik - also taken in coastal areas during the summer. Shingle Point, Ptarmigan Bay, Stokes Point.	human use fresh and dried form
Lake Trout Christinomer namaycush	Eskimo Lakes, Travaillant Lake, Sitidji Lake, Ya Ya Lakes	human use
<u>Fish Species Available but little utilized</u>		
Arctic Grayling (Thymallus articus)	Found away from major fishing locations - has a short keeping duration - average weights under 1 lb.	human use
Smelts	Occur in both coastal areas and in the delta	size too small to be taken in regular sized net meshes
Salmon Humpback	Extremely sporadic occurrence - occasional specimens taken in nets on west branch and also reported from Napoiak Channel	

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- (1) Lake Trout and grayling are found only in clear waters of lakes or streams. They are not found in the silt laden waters of the Mackenzie or Peel systems. Trout are not found in the Delta but in the clearer waters - "Ya Ya" for instance.











The small group at Tree River fish the main Mackenzie during the summer. They autumn fish a lake twenty miles west of Tree River. In 1964-65, they chartered into the lake by small aircraft from Tree River.

### Stickfish

Stickfish, consisting of ten fish to a stick, are produced at Arctic Red and customarily sell for \$2.00 a stick. Production of stickfish takes place in autumn and whole fish are merely suspended in the cool autumn air. The average weight of stickfish is twenty-five pounds.

### Herring Run

A run of lake herring occurs along the Mackenzie and Peel in the autumn and these are taken in gill nets. On the Peel Channel in good seasons, individual fishermen have reported taking as many as 18,000 herring - 23,000 herring in the autumn.

### Fish Sales

According to local people there has been a decline in fishing activities. In the winter of 1965-66, the H.B.Co. manager at Fort McPherson, attempted to buy 1,500 pounds of whole fish from Arctic Red, but was unable to do so. The decline in fishing activities may be partly attributed to the exodus of Arctic Red River people to Inuvik.

### Commercial Fishing

During the nineteen fifties, a local trader at Fort McPherson attempted to initiate a winter commercial fishery, through the use of a ski-equipped plane to fish outlying lakes. A number of localities were tried in the Fort McPherson and Arctic Red River areas, including Hyndman Lake. The venture failed, through lack of markets for fresh fish at Aklavik, and lack of enthusiasm on the part of Indian fishermen.

In 1965, a local trader at Fort McPherson requested a commercial fishing licence but did not receive one, due to local domestic requirements.

Further research by fishery experts is required before commercial fishing can be permitted because of the heavy demands on fish stocks by local residents. However, the fact remains that there are large areas not being utilized at the present time. A major problem is lack of access to outlying areas with commercial fishery potentials.

### The Use of Fish Traps

There is scope for experimentation with fish traps on both the Peel and Mackenzie Rivers. These could substantially increase the returns of the domestic fisheries.

Experimentation in the construction and use of fish traps, could be undertaken by the Department of Indian Affairs and Northern Development. The domestic fisheries do not appear to be meeting the needs of the local population at Fort McPherson or Arctic Red River. Fish catches in 1964 and 1965, were reported to be poor on the Peel River. Also an increase



in the number of people living in the settlement has resulted in a decline in the production necessary to meet local needs.

#### Annual Sales Realized from the Domestic Fisheries

<u>Fort McPherson</u>	<u>Quantity</u>	<u>Quantity Price</u>
H.B.Co.	900 lb.	20 cents
Anglican Hostel	2 - 3,000 lb.	20 cents a lb. for whitefish 30 cents a lb. for trout
Indian Affairs	4,000 lb.	20 cents a lb.
Local Dried Fish	1,500 lb.	20 cents a lb.

#### Aklavik

H.B.Co.	1,800 - 2,100 lb.	25 cents a lb.
Local Dried Fish	1,000 lb.	20 cents a lb.

#### Arctic Red River

Local Dried Fish	1,500 lb.	20 cents a lb.
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#### Inuvik

Fresh and Dried Fish	12,000 lb.	22 cents a lb.
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Total Estimated Annual Revenue from Domestic Fisheries: \$5,404.00

No fish were purchased locally by the Hudson's Bay Company at Tuktoyaktuk in 1966, for resale purposes. Local prices for fish have not changed during the last decade.

#### Increasing the Domestic Fisheries

An increase in domestic fishing would ease the use of caribou for dog food. This would be an important conservation measure. It would require increased production of dried fish for easy transportation, or the establishment of depots of pitted fish.

It is doubtful whether increased productivity in the domestic fisheries would radically reduce the existing volume of imported dog food sales, since there are requirements for tallow and dog food during the coldest months.

The general decline in activities in the Arctic Red River area brings the consideration of extending the commercial fisheries to Arctic Red River (and Travaillant Lake) under scrutiny. This would provide a source of employment as well as stocks of non-commercial and coarse fish for local use.

#### Sports Fishing Potentials

There is some potential for sports fishing in the Fort McPherson area, since Dolly Varden trout and grayling are available in a number of streams and rivers, draining from the Richardson Mountains into the Peel.



Lake trout are available in a number of lakes.

Sports fishing for trout and grayling is available in Travaillant Lake and lakes eastward from Travaillant. These are accessible by charter aircraft based at Inuvik. Travaillant in high water period can be reached by boat.

#### Domestic Fishing in the Central Portion of the Mackenzie Delta

Domestic fishing patterns in the central delta region, (including Inuvik, Aklavik and Reindeer Station), vary little from those carried on in the southern portion of the region. The species fished are the same with minor exceptions. The domestic fishery of the Aklavik people extends from the Peel and Husky Channels to Whitefish Station and Shingle Point on the coast. Eastward, the fisheries extend along the Aklavik Channel to the middle Mackenzie, in the vicinity of Horsehoe Bend. In recent years there appears to have been a decline in coastal fishing, co-incident with a decline in whaling.

The zone between the Middle Mackenzie and the east branch, is fished by resident trappers and town folk from Inuvik. The town folk fish in the immediate vicinity of Inuvik at locations where nets can be tended after working hours. A few Eskimo, Indian and Metis women, establish fish camps in August to which their husbands commute in off-hours. A minor amount of net fishing is carried on east of the east branch in the Gull River and Long Lake areas.

The trappers in the zone between Shallow Bay and Reindeer Station, fish within that zone. They also do some fishing at the whaling sites, such as Kendall Island and Whitefish Station, but this is in conjunction with whaling activities.

Residents of Reindeer Station fish the area between the Middle Mackenzie and the east branch, north to Kugmallit Bay. The Reindeer Station fishery at Kidluit Bay is conducted in September to meet dog food requirements, (20,000 fish). Domestic fishing also occurs at Whitefish Station on the east side of the delta. Some autumn fishing has also been carried on at the Eskimo Lakes, but these are not so easy to reach.

Autumn fishing is of extreme importance in providing for dog food requirements. Herring fisheries are conducted in October and November on the west branch and the Peel Channel, and in good years large catches of herring can be taken by fishing through thin ice with gill nets.

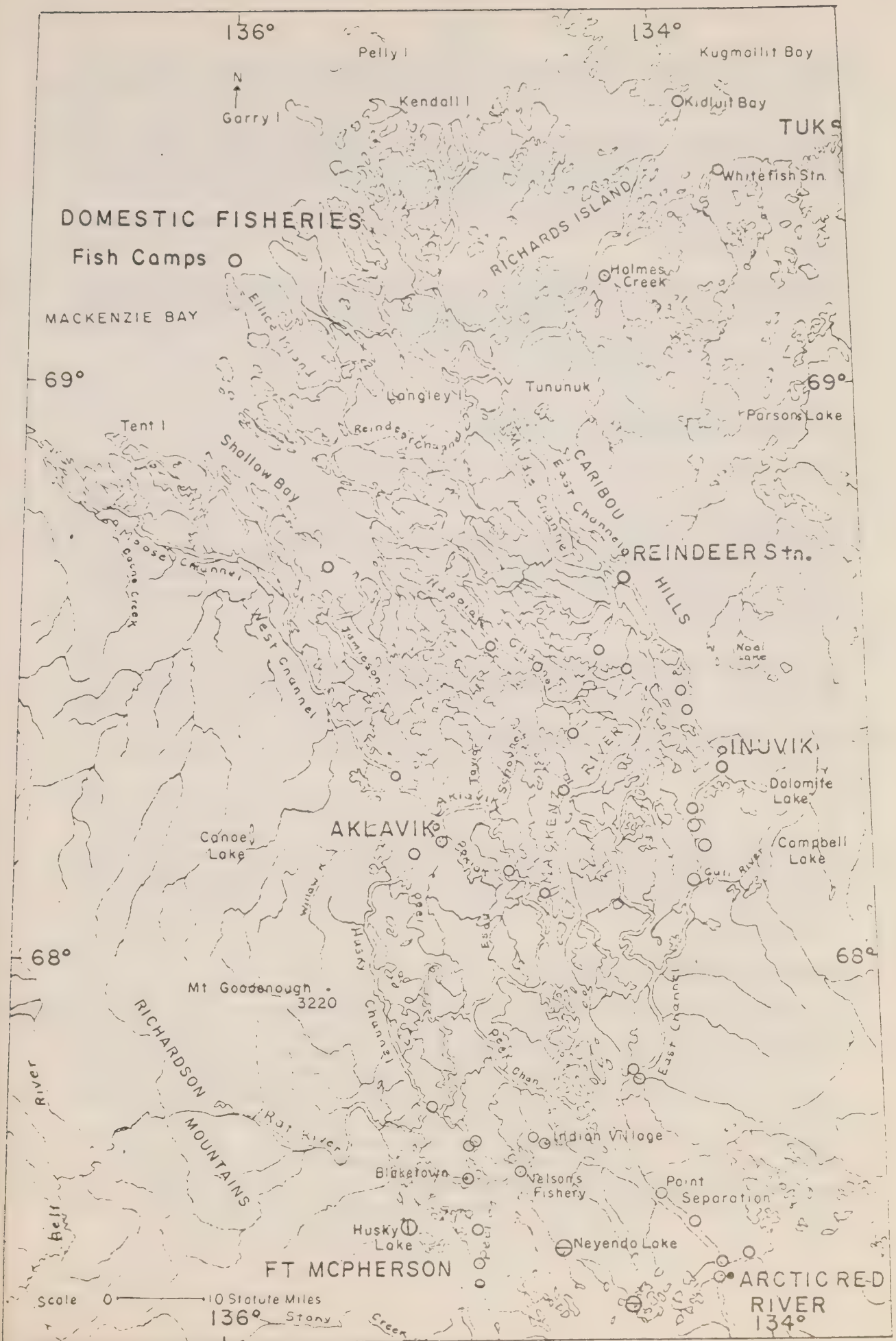
Concentrations of fish are found at various spawning locations, and trappers fish these locations.

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Travaillant Lake is forty miles from Inuvik by air. There appears to be little potential for commercially fishing this area, unless the logistics of transporting fish to collection points, at a reasonable cost for transportation south, can be overcome.

A place locally known as the Fish Hole, 68° 17'N 136° 24'W, is fished in late autumn for trout.







People from both Fort McPherson and Aklavik make occasional trips to the "fish hole" on the Rat River, where trout can be taken in sweeps with nets.

Jigging for loche takes place in late October and November. The liver and roe are used for human consumption and the remainder is customarily used for dog food. Loche fishing is conducted on lakes or at stream mouths.

Fish for dog food are either pitted or cached on stages, depending on weather conditions.

The potential working season for sled dogs is approximately 225 days in the lower Mackenzie regions, with some variations in length from north to south. Dogs being worked on the sea ice can be used for longer periods than those being used inland on rivers and lakes, where an earlier break-up occurs.

#### The Varied Demand for Fish at Inuvik

Local demands for fish at Inuvik show considerable variation. The demands of local Indians, Metis and Eskimos are met through their own efforts in setting nets at nearby locations, or by purchase or barter from local fishermen, or through fish purchases made at Semmler's store. A relatively wide preference range is shown in fish purchases. Some local Eskimos prefer to purchase "aged or ripe fish", rather than fresh, frozen fish. Various degrees and methods of smoking fish are given preference by Indian purchasers.

The non-permanent white population is not prepared to handle whole fish, which require additional preparation before being cooked. They have also shown little interest in herring. Few develop a taste for smoked fish. Major preference is shown for Arctic char which is rarely available, lake trout and fresh whitefish. Limited sales potentials do not warrant expensive handling procedures.

In 1964, a local co-operative at Inuvik, (which had been formed for the purpose of securing housing), voiced an interest in handling fish for local sale at Inuvik. However, they had no facilities for handling or storage of fish and the matter was never satisfactorily resolved. The members of the housing co-operative are occupied with full-time employment.

#### Requirements for Dog Food

Various estimates have been placed on the requirements of fish for dog food. During the colder period, which lasts for eight months, sled dogs must be fed more frequently than during the summer. Eskimo informants said that 2 - 3,000 fish, weighing three to five pounds on the average, were required in addition to muktuk and whale oil, to maintain a dog team of six working dogs through the winter period. Indians in the region indicated they have similar dog food requirements, (but lacked access to muktuk and whale oil supplies). Other informants indicated that each dog required a large fish, (approximately 5 lb.), per day, during the working period, in addition to prepared dog foods. In the southern part of the region, dog food requirements are partly met through feeding less edible caribou meat and offal to dogs, for at least part of the



winter. The carcasses of fur animals are also fed to dogs.

In the summer dogs are fed twice weekly on the average. The sled dogs of Reindeer Station are placed on an island in Kugmallit Bay and allowed to fend for themselves during the summer. This is not possible in other locations. Both in the settlements and at the camps dogs are chained and cannot forage for themselves.

Regional attempts in 1964 failed to produce fish meal as an economical source of dog food due to the high costs involved in production and the necessity of mixing the fish meal with cornmeal.

Utilization of reindeer offal for dog food could provide a cheap source of dog food in the region. The slaughter of 3,650 reindeer in 1970-71 for example, would make available over 190,000 pounds of offal, valued at two cents a pound, at the slaughter sites. Transportation costs should not add excessive amounts to this cost.

### Sports Fishing

Major activity in sports fishing is carried out by Inuvik residents since access to good fish lakes can, in many cases, only be had through charter aircraft. Sports fishing from boats is carried out during the summer at Long Lake for lake trout and jackfish. A few fishermen travel by boat as far as Campbell Lake. The Ya Ya Lakes on Richards Island, are fished for trout in July, August and September by Inuvik fishermen. Both Noel Lake and Sitidgi Lake are fished for lake trout and grayling by fishermen who charter by air in to these lakes.

Minor amounts of ice fishing occur during the early winter and in the spring.

Heavy parasitic infestation of lake trout was reported in lake trout taken from Sitidgi Lake in late June and early July.

Little attention has been paid by sports fishermen to "catch limits" in sports fishing in the region and fishermen are tempted to take large catches when using charter aircraft. It is likely that increased utilization of Sitidgi Lake by sports fishermen will require the limiting of catches. Experimental fishing by Menzies Fisheries in the southern half of the Eskimo Lakes in September, 1966, aroused the wrath of the owner of a fishing lodge being constructed on the northern end of Sitidgi Lake. This was due to the proximity of commercial fishing to sport fishing areas.

Arctic char and grayling receive little attention from sports fishermen due to the distances involved in reaching suitable fishing sites on the Arctic coast and in the mountains.



Estimates of Annual Fish Requirements

	<u>Lbs. of fish</u>	<u>Indian</u>	<u>Eskimo</u>	<u>White and M.</u>	<u>Dogs</u>
Aklavik	500,000	144	282	203	360
Inuvik	350,000	340	563	1,355	110
Fort McPherson	500,000	485	5	250	515
Reindeer Station	100,000		67	6	70
Arctic Red River	110,000	72		6	80
Tuktoyaktuk	600,000	5	405	65	200
	2,160,000	1,046	1,322	1,885	1335

Commercial Fisheries

There are a number of local factors involved in the establishment of a commercial fishery. These are:

1. Limited local market being partially met by local producers.
2. Occupation of good fishing locales by domestic fishermen.
3. Difficulties of distance and short season which hampers development of fisheries along the Arctic coast. Increased winds in August hamper fishing projects on the coast.
4. Transportation costs involved in reaching outside markets.
5. Competition from more strategic fisheries at lower prices on outside markets. It is cheaper to produce fishmeal on the Pacific west coast and ship it into the region than to produce it locally. Evidence points to a decline in fish consumption in the prairie provinces as well as the United States. Cheaper fish sources are available from the northern fisheries in the provinces as well as Great Slave Lake. There are recent indications of a revival in fishing on the Great Lakes. The Scandinavian salted and pickled herring industry has hitherto precluded the development of a northern herring fishery.

The Department of Fisheries in recent years has expressed considerable reservations about the feasibility of a commercial fishery in the lower Mackenzie region. The region is heavily populated with persons involved in the subsistence economy and fish requirements for human consumption and dog food are high. The Department of Fisheries has estimated that at least 500,000 pounds of exportable fish are required for the establishment of a viable enterprise. In making this harvest and estimated take of 300,000 to 400,000 pounds of non-exportable fish would be taken. This would have to be diverted to local use.

The Department of Fisheries has pointed out that the establishment of a commercial fishery requires large amounts of outside capital, technical know-how and equipment. A heavy investment is required in collection boats, blast freezers and storage facilities.

Residents of the region interested in promoting commercial fishing, are quick to point out large potentially productive areas, which are not being used for domestic needs. Costs of fishing outlying regions in the lower Mackenzie region rapidly increase with distance. Also, it is not yet known to what extent the unutilized areas act as resource reservoirs and function in the replenishment of the areas now being fished.

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\* An additional 113 dogs are owned by trappers in the delta.



Some local fishermen are able to meet their own requirements, but few have experience in commercial fishing and the requirements of care in the handling and holding of catches until they can be picked up by collection boats.

In the summer of 1964, the Industrial Division of the Department of Northern Affairs conducted a fishery at Holmes Creek on the east channel, ninety miles from Inuvik.

#### Holmes Creek Fishery - Summer 1964

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<u>Fishermen</u>	<u>Nets Used</u>	<u>Duration Fished</u>	<u>Whitefish</u>	<u>Culls</u>	<u>Earnings</u>
1	6	July 16-August 18	9,086	6,931	\$1,704.28
1	5	July 22-August 18	3,630	6,654	744.12
1	5	July 16-August 18	5,294	5,545	960.45
1	5	July 16-August 15	3,740	4,182	766.46
1	5	July 16-August 18	data lacking		421.56
1	5	16 days	2,079	2,690	392.55
1	5	15 days	2,182	2,095	390.15
1	5	17 days	4,808	3,401	823.35

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Within the immediate area of Holmes Creek fishermen were travelling up to seventy miles a day to set nets. This involved substantial expenditures of gasoline.

Fishermen were paid fifteen cents a pound for whitefish and three cents a pound for cull fish. These prices may be compared with those paid at Great Slave Lake during the summers, as reported by the Department of Fisheries from 1961 to 1963. Prices varied from seventeen cents a pound for jumbo whitefish, to nine cents a pound for small whitefish.

A total of 42,450 pounds of whitefish and 34,904 pounds of cull fish were harvested. Filleted whitefish were made available to consumers at Inuvik at a cost of 35.5 cents a pound. While whole whitefish were offered at twenty-two cents a pound. Local demands at Inuvik were inadequate to absorb this supply of fish. There was also a lack of established marketing systems within the region. A lack of established marketing outlets in south Canada prevented export of this product.

#### Commercial Fishing by Private Interests - 1965

In the summer of 1965, a private company from Edmonton began a commercial fishery in the Inuvik region. The company had had a number of years experience in commercially fishing northern lakes in Alberta and Saskatchewan and on Great Slave Lake.

The fishery began in late July and came to an end in September. Local fishermen were involved in catching fish for sale to the company.

The central area of the delta, between Aklavik and Inuvik, was fished for whitefish. A char fishery was established at Pauline Cove on Herschel Island and Ptarmigan Bay on the Yukon coast.



A collection boat made a weekly circuit to collect fish, which were iced and packed in plastic bags for air shipment to Edmonton. In mid-September, the collection boat valued at \$10,000, was lost in drift-ice off Herschel Island. This put an end to the commercial fishing operation.

#### Total Fish Take (1)

Pauline Cove	- 550 lbs. of Arctic char
Ptarmigan Bay	- 15,534 lbs. of Arctic char
Central Delta	- 19,930 lbs. of whitefish

The catch of Arctic char was much higher than previous estimates made by fishermen acquainted with the Yukon coast and Herschel Island.

On the basis of these results the company planned to fish in the Inuvik region for another season.

#### Assessment of the 1965 Commercial Fishing Season

The returns from the commercial fishery were low in respect to costs. High costs were involved in air transportation, particularly in respect to the Arctic coast. The loss of the fish collection boat and the radio added to expenses. Total reported expenses in 1965 amounted to \$37,990.79. Recovery of expenses chiefly through fish sale amounted to \$14,166.10.

#### Commercial Fishery, 1966

The commercial fishery operation in 1965 pointed out the need of having a barge-mounted freezer for collection purposes. The owner and operator of the commercial fisheries, with a plant in Edmonton and operations at Great Slave Lake, planned to move a barge-mounted freezer from Great Slave Lake to the Mackenzie Delta, but this proved to be impossible.

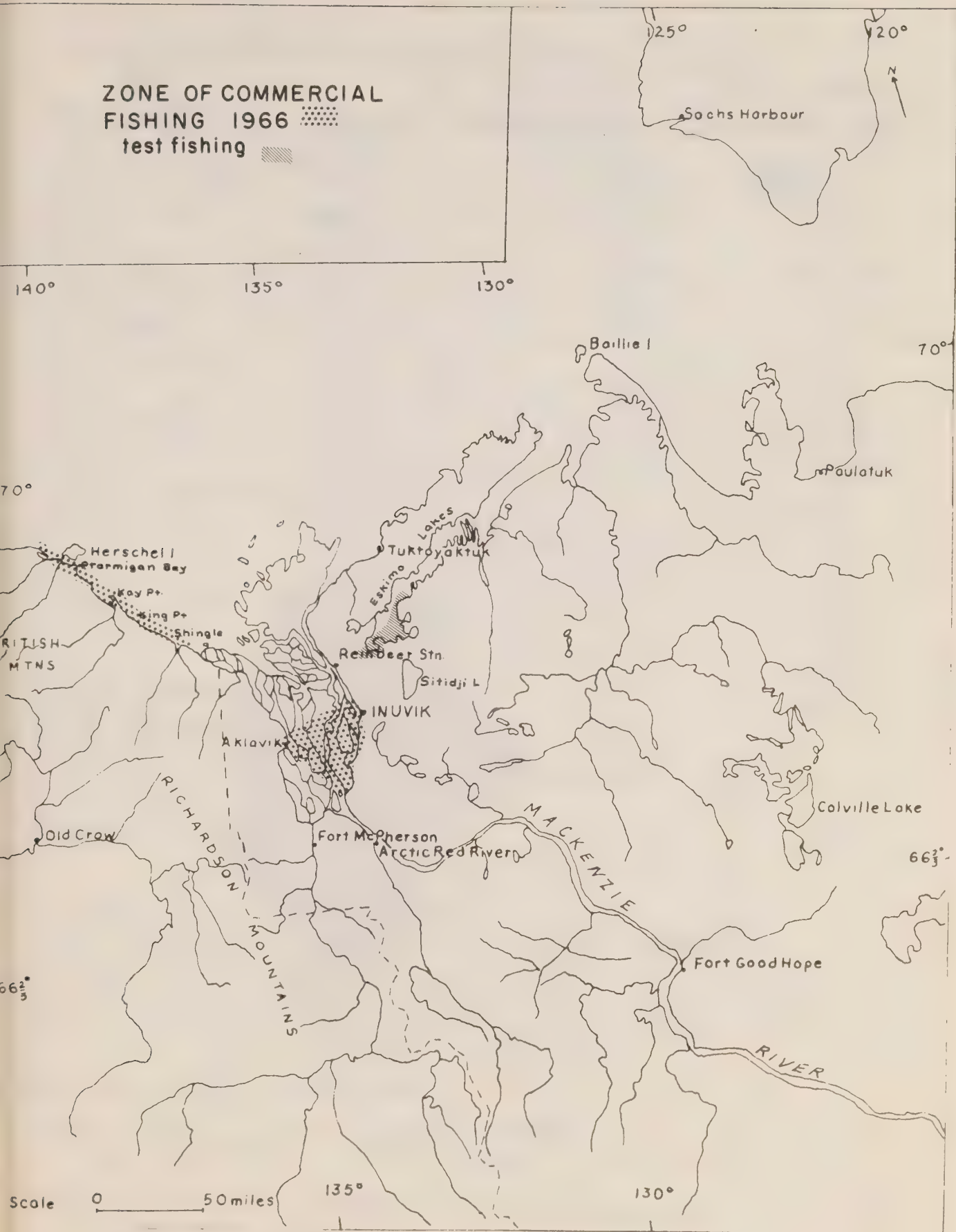
In late July, a representative of the commercial fisheries contacted fishermen at Inuvik and Aklavik, and made arrangements to have interested parties fish commercially in the Mackenzie Delta and along the Arctic coast. Fishermen used their own boats and motors to reach the fishing sites, but received advances for nets, gasoline and food. The fishermen located at points where they knew from experience that fishing was good.

As can be noted from the statistics, little profit was to be had from commercial fishing during August. The fishermen involved supplied their own boats and motors. These earnings can be contrasted with \$526 per month, which could have been earned from casual labour in the settlements. Of the group, only five could be classed as non-employable due to age, infirmity, sex or other reasons.

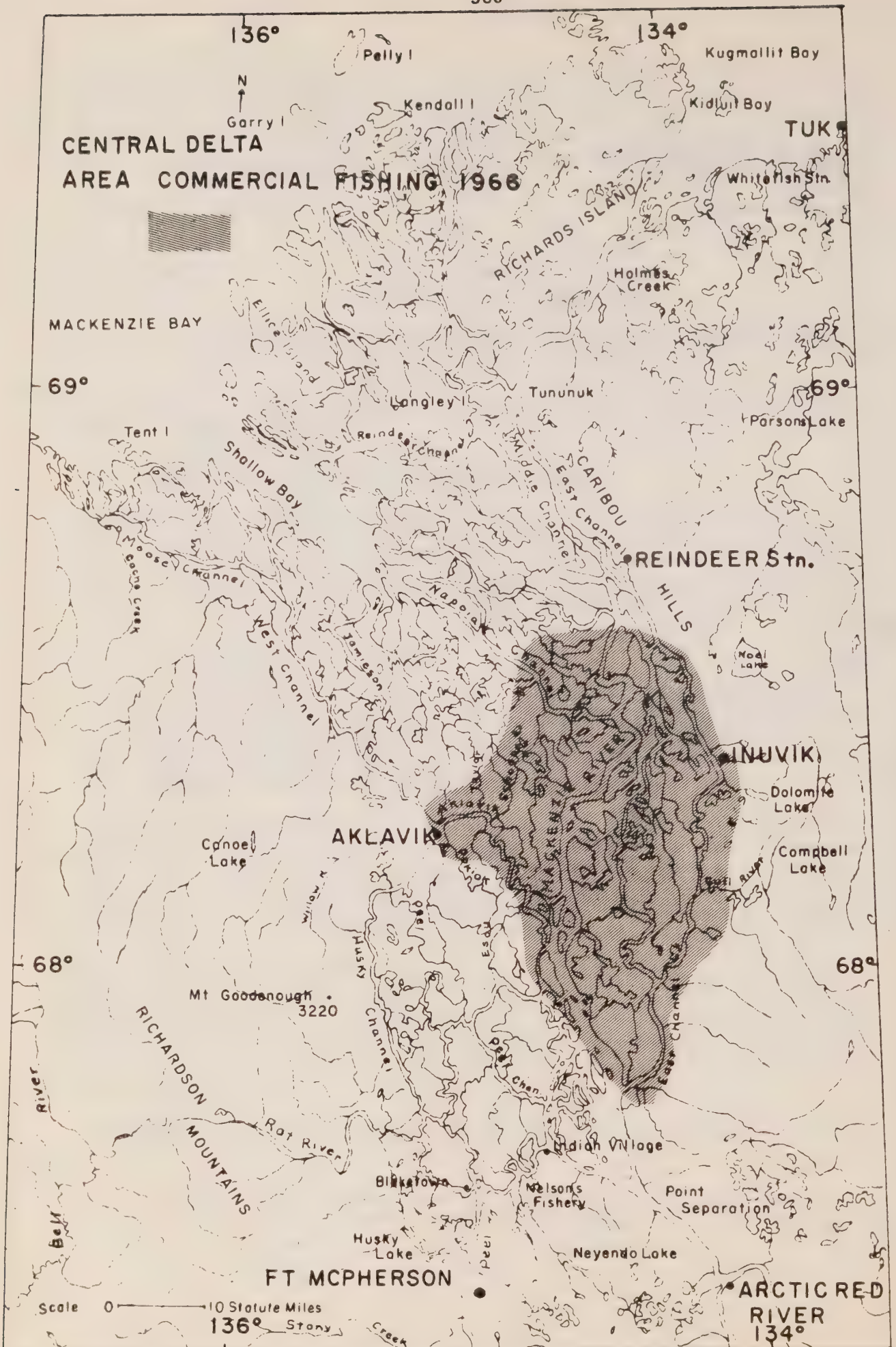
These earnings may be contrasted with those gained from the Holmes Creek Fishery listed on page

Methods of fishing were those commonly used in the subsistence economy, the fishing of eddies and stream mouths with short gill nets set from shore.











Returns to Local Fishermen from Commercial Fishing in August 1966

<u>Ethnic Origin</u>	<u>Residence</u>	<u>Advances of Nets Mdse. etc.</u>	<u>Fish Purchases</u>
Eskimo	Aklavik	\$428.33	\$347.52
Indian	Aklavik	208.09	171.24
Metis	Inuvik	312.13	361.60
Eskimo	Inuvik	182.50	80.64
Eskimo	Delta	138.10	4.60
Eskimo	Inuvik	80.00	4.60
Indian	Aklavik	202.37	213.26
Indian	Delta	112.37	71.72
Indian	Aklavik	66.85	129.30
Metis	Aklavik	39.77	69.84
Metis	Aklavik	59.40	91.24
Indian	Aklavik	32.12	40.58
Eskimo (female)	Aklavik	112.28	226.38
Eskimo	Aklavik	190.26	243.66
Indian	Aklavik	28.44	-
Indian	Aklavik	63.05	-
Indian	Aklavik	39.10	4.00
Metis	Delta	126.40	88.48
Indian	Aklavik	-	36.96
Metis	Delta	139.68	60.14
Eskimo	Aklavik	-	13.60
Eskimo	Aklavik	-	10.00
Metis	Inuvik	190.20	207.58
Metis	Delta	219.50	69.54
Metis	Inuvik	29.10	103.92
Eskimo	Delta	188.00	-
Eskimo	Delta	66.55	-
White	Inuvik	46.70	-
Metis	Delta	-	146.14
Eskimo	Delta	-	19.12
Eskimo	Inuvik	-	12.48
White	Inuvik	-	491.44

In general, the methods used in subsistence fishing are inefficient in terms of commercial fishing. However, the use of improved fishing techniques might affect a reduction in fish stocks in the central delta zone with drastic effects on domestic fisheries. It is worth noting that commercial fisheries are now active in locations of considerable importance to the domestic fisheries. Extremely little is known in respect to extent and nature of fish runs in the lower Mackenzie region.

Char Fishery on the Yukon Coast

The char fishery on the Yukon coast was carried out by four fishermen and their families from Aklavik. These were joined by two men from the trapper

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(1) Information tallied from purchase slips issued by the company to local fishermen.



group residing between Shallow Bay and Reindeer Station. (1) The fishery commenced in early August. The coastal reaches of the Beaufort Sea were completely free of ice. High winds in mid-August lasted for a week and affected fishing operations.

The centre of the char fishery was at Ptarmigan Bay, where the fishermen and their families had access to good supplies of driftwood and fresh water. The fishermen lived in tents sheltered by a knoll to the west, and stacks of firewood, which they accumulated for fuel and protection from the wind.

Char were taken in gill nets set from the shore. Whitefish, saltwater herring, small flatfish, and sculpins were taken as well as char. Less than 800 pounds of char were taken from the nets. The fishermen felt that the absence of ice offshore and high winds had affected the fishing. Attempts were made to locate fish as far west as Komakuk Beach and as far east as Stokes Point without success.

Collection of fish from the camps was carried out by plane from Inuvik and this proved to be costly in view of the poor results. The wife of one of the fishermen was taken ill and this necessitated evacuation by aircraft, the cost of which was borne by the fish company.

By the latter part of August the majority of fishermen returned to the delta. Two families remained to hunt caribou and do some sealing. They returned to the delta in early September 1966.

#### Varying Commercial Potentials of Fish Species

Distance to markets and local procedures of handling fish limits the commercial potentials of some species. The inconnu or conny, is subject to rapid deterioration after being caught. This species quickly drowns in nets and deterioration rapidly sets in due to the relative warmth of the delta waters. A tendency towards oiliness and rankness in the summer reduces its commercial value although it is acceptable to local residents either as fresh or smoked fish.

The commercial fishing company had hoped to find a market for crooked backs in New York where there is a speciality demand for smoked fish of various forms. However, the crooked backs proved to be too lean and dark to be suitable for this market.

It was reported that Arctic char shipped to Edmonton were filleted for sale. Filleting was carried out due to a deterioration in the physical appearance of the fish prior to arrival in Edmonton. Physical deterioration resulted from frequent handling, necessitated through picking up the fish on the coast, sorting and holding at Inuvik under less than optimum conditions, and final packing for shipment south.

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(1) One Indian, one Metis and four Eskimos, fished for char at Ptarmigan Bay.  
A total of 35 people were located at Ptarmigan Bay during the char fishery.



Individual Whitefish Returns of Delta Fishermen - 1966

<u>Ethnic Status</u>	<u>Period Fished</u>	<u>Whitefish (in pounds)</u>			<u>Value</u>
		<u>Jumbo</u>	<u>Large</u>	<u>Medium</u>	
Metis (7)	August 30 - Sept. 15	963	1,573	771	319.16
Eskimo (5) Female	August 1 - Sept. 4	158	186	92	42.98
Eskimo (7)	August 11 - Sept. 15	473	822	380	161.76
Metis (5)	August 10 - Sept. 8	133	131	124	34.16
White (10)	August 8 - Sept. 14	1,671	-	-	214.86
White (Female) (6)	August 30 - Sept. 14	171	281	266	64.58
Indian (4)	August 6 - Sept. 5	145	177	85	40.20
Metis (4)	August 6 - Sept. 4	247	202	108	57.52
Indian (1)	August 10	92	65	43	20.12
Indian (1)	August 4	45	50	18	11.48
Indian (6)	August 31 - Sept. 8	206	244	273	63.40
Metis (4)	September 8 - Sept. 14	191	122	94	40.76
Eskimo (1)	September 14	74	162	100	31.08
Eskimo (7)	August 6 - Sept. 14	746	298	166	130.28
Indian (2)	August 10 - August 11	180	99	27	36.22
Eskimo (7)	August 12 - Sept. 15	779	1,363	304	248.02
Indian (5)	August 6 - Sept. 5	192	238	251	61.90
Indian (5)	August 12 - August 31	215	257	146	58.50
Metis (8)	August 6 - Sept. 15	723	995	707	228.40
Metis (4)	September 8 - Sept. 14	46	85	60	18.62
Metis (3)	August 31 - Sept. 4	221	200	51	49.58
White (2)	September 10 - Sept. 13	45	86	85	19.10
Metis and Indian (4)	August 13 - Sept. 13	595	734	302	152.32
Eskimo (1)	August 21	114	27		16.38
		8,425	8,397	4,453	\$2,151.64

Source - Department of Fisheries, Hay River - quantities obtained from individual sales slips. Letters in brackets indicate number of deliveries or pick-ups during periods fished.



Pending further developments in catching procedures, processing methods and marketing, Arctic char, true whitefish and lake trout will continue to be the commercial species.

Increasing interest is being shown in Alaska in respect to the commercial potentials of Arctic char stocks on the northern Alaska coast, between Point Barrow and Demarcation Point. It is presumed these would be marketed in the more populated sectors of Alaska.

#### Estimated Costs of Producing Whitefish for Edmonton Market

The following is an estimate of the costs involved in catching and shipping fish to Edmonton based on the operations of the commercial fishery in the central delta zone in 1966:

Average price paid to fishermen	10 cents a lb.
Average cost delivery of fish to dock	4 cents a lb.
Average costs packing fish	2 cents a lb.
Air freight to Edmonton	12 cents a lb.
Over-all handling charges	6 cents a lb.
Total Costs	<u>34 cents a lb.</u>

The whitefish were shipped to markets in the United States. Average prices of 50 cents a pound were realized by the shipper.

#### A Dockside Plant

The establishment of dockside facilities at Inuvik would be an advantage in commercial fishing. There are requirements for running water, cold storage and packing facilities. These would permit the holding of fish for longer periods without rapid deterioration. The commercial fishermen in 1966 frequently had to cull fish, which had been collected for shipment south by aircraft, due to holdovers and warm weather. Spoiled fish were made available for use as dog food to anyone willing to make arrangements for pick-up.

#### Collection of Fish from the Fishermen

During the initial fishing phase a collection boat powered by a thirty-five horse power motor was used, but motor breakdowns and delays in securing parts forced the commercial fishery operators to resort to picking up fish by aircraft. The cost of picking up and delivery of fish by Cessna aircraft, over a distance of not more than thirty miles, came to five cents a pound.

Lack of communication with fishing camps affected the fishing operation, as small catches rapidly increased the costs of collection. In late August, the manager of the commercial fisheries ceased dealing with Aklavik fishermen operating on the west branch, due to poor catches.

#### Air Transportation

The use of air transportation in moving fish from Inuvik to Edmonton substantially added to the costs of commercially fishing in the lower Mackenzie region. Costs amounted to twelve cents a pound for shipping. Fish were shipped in plastic bags. On one occasion the plastic bags were left unsealed and resulted in complaints from the air company. On more



than one occasion there were delays resulting from lack of space etc. As might be expected there were also costs involved in getting spare parts for motors etc. from Edmonton.

Water transportation of fish would result in lower rates. The cost from Inuvik to Hay River is five and a half cents a pound. There are four trips of refrigerated barges between Hay River and Inuvik, during the summer, and these could be used in moving fish south. Each trip takes approximately two weeks. From Hay River to Edmonton the trucking costs amount to one and a half cents a pound.

Use of water transportation is conditional, however, on the establishment of large holding facilities, or the use of a freezer-mounted barge in the lower Mackenzie region. The costs of a freezer-mounted barge have been estimated at \$200,000. To be economically feasible this would require that productivity be greatly increased on the fishing grounds.

The use of a barge would eliminate collection trips and holding of fish at the fishing sites under primitive conditions.

#### Problems Associated with Development of Coastal Fisheries

1. Distance involved in locating and harvesting fish
2. Large capital costs involved in boats and freezers
3. Variance in ice conditions add to the potential hazards of coastal fishing
4. Short operating season
5. Lack of potential markets or marketing organizations in the region and in other areas
6. Continuing centralization of the population in the southern portion of the region with resulting depopulation of coastal areas.

There has been some speculation as to the potentials for harvesting various marine resources, including king crab. Increased demand and improvements in the technology of northern fishing, in time may increase the economic potentials to a point where large investments are worthwhile. There is scope for continued resource inventories by fisheries experts.

In 1963, an experimental herring fishery was conducted at Baillie Island, north-east of Tuktoyaktuk. This project proved to be unsuccessful for a number of reasons. The location was inaccessible to regular supply and pick-up. Tide and wind conditions made inshore fishing hazardous. Freshwater had to be supplied from the mainland. Sufficient herring were harvested to permit a market assessment in Edmonton. While the product proved satisfactory it was non-competitive with Scandinavian herring products, due to high costs of production and transportation.

Test fishing at Liverpool Bay during the summer of 1964, produced unsatisfactory results.

#### The Arctic Zone Fisheries

Abrahamson, (1963), commented on the large unused potential fish resources in the Arctic zone of the lower Mackenzie region. Since 1963, there have been sporadic attempts to organize fishing on a commercial basis in the Arctic zone. West of the delta, reference has been made to the activities



of a commercial fishing company and the minor activities of local residents, in respect to fishing activities during whale hunting.

For the purposes of this report, it is worthwhile to include the estimates arrived at by Abrahamson, since these have not changed in the short interval.

#### Fish Potential and Utilization - Tuktoyaktuk

<u>Species</u>	<u>Potential</u>	<u>Utilization</u>	<u>Location</u>
Lake Herring	90,000 lbs.	90,000 lbs.	Tuktoyaktuk
Lake Herring	10,000	10,000	Toker and Atkinson
Lake Herring	20,000	Nil	Baillie Islands
Blue Herring	100,000	Nil	Baillie Islands
Whitefish and Inconnu	20,000	20,000	Tuktoyaktuk
Whitefish and Inconnu (Incl. Pike & Sucker)	50,000 (all species)	12,000	Eskimo Lakes system
Trout	$\frac{1}{2}$ lb. per acre	4,000	Eskimo Lakes and other lakes in area
<hr/>			
Total	250,000 lbs.	135,000 lbs.	

Tuktoyaktuk Eskimos concentrate their fishing activities within the immediate coastal area of Tuktoyaktuk and in particular, in Tuktoyaktuk Harbour. They also fish at Whitefish Station on a sporadic basis, during the summer. In the spring they jig for trout at the open water cracks on the north-east side of the Eskimo Lakes. In autumn, trappers going inland fish along the south-east side of the Eskimo Lakes and at the mouth of the Kugaluk River.

The current market for herring in southern Canada is being met by production in southern Canada and Scandinavia at lower costs than those involved in fishing a scattered fish resource such as the Arctic, which requires substantial investments in capital equipment, such as trawlers for operation during a short fishing season. At the local level, no market exists for fresh or

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- (1) Trout estimates for the Eskimo Lakes also appear low since the total area of the lakes is estimated to be 340 square miles or 46,900 acres. Department of Fisheries estimates are a potential yield of one half pound per acre.



frozen herring among the non-permanent white population in Inuvik. A small market exists among the Eskimo and Indian population.

Along the Yukon coast, it is interesting to note the lack of large lakes on the coastal plain and plateau, which might support a large population of anadromous char. Eskimo have reported large concentrations of char in the deep water holes on the Blow, and other rivers draining into the Beaufort Sea.

#### Yukon Coast

Location	Potential	Current Utilization
Shingle Point		
Inconnu	15 - 20,000	1,500 to 2,000 lbs. domestic use
Herring	20 - 30,000	" "
Stokes Point		
King Point		
Ptarmigan Bay		
Pauline Cove		
Char	500 - 23,000	1,000 lbs. Commercial and Domestic(1966)
Herring	20 - 30,000	600 lbs. " " "
Whitefish	15 - 20,000	200 lbs. " " "

The above estimates are based on R.C.M.P. takes, Commercial and Domestic fishing in 1966. There is clearly room for further examination of the potential. However, due to the extreme remoteness of the Yukon Coast in terms of potential southern markets, and its apparently increasing remoteness for residents of the lower Mackenzie region full realization of the marine resource is unlikely to occur.

#### Whaling

White whales, (*Dephinapterous leucas*), are found around the mouth of the Mackenzie River during the summer, following migrations from the North Pacific and Bering Sea areas. Whales appear in large schools in July, east of Richards Island, shortly after the ice breaks up. They also appear in numbers at the north end of Richards Island and in the vicinity of Whitefish Station, Tent Island and Escape Reef. They occur in the Herschel Island area in August and early September, on their westward migration from the region.

Beluga or white whales have an estimated life span of twenty years. Physical maturity is reached at six to seven years, but sexual maturity takes place earlier and the average number of offspring for beluga cows has been estimated at fifteen calves during a normal life span. The gestation period is thirteen to fourteen months, the lactation period eight months. Mating takes place during the period between April and June. The birthing stage also occurs some time during this period.



Limited sampling of white whales in the Beaufort Sea, indicates lengths of fifteen feet for mature males and thirteen feet for mature females, (Seargeant, 1962, p.4).

Kendall Island is considered by many persons, to be the best catching site, due to its central locality and access to the greatest catching field. The approach to Kendall Island from the delta, is sheltered by islands.

Big bulls herald the movement of whales into the area. These are followed by barren cows and more bulls. The calves appear during the peak of the run. The outward movement of whales is gradual and by mid-August the area is usually deserted. However, in 1966, whales were still being sighted in the area in late August.

From time to time, whales have wandered into the Eskimo Lakes from Liverpool Bay. This occurred in 1966, when seventeen whales entered the Eskimo Lakes and were subsequently trapped in the lakes with the onset of winter conditions.

### Whaling Sites in the Lower Mackenzie Region

#### Shingle Point

In recent years, this location has attracted Eskimos from Aklavik and the delta. The site offers a safe anchorage for boats, fresh water and fuel supplies in the form of driftwood. The majority of those interested in whaling now prefer to locate at Whitefish Station, east of Shingle Point.

Whitefish Station is closer to Aklavik and does not involve extensive coastal travel with shallow draft barges and canoes.

Seven Eskimo families from Aklavik hunted whales from Whitefish Station in July 1966. They were joined on weekends by permanently employed Eskimos from Aklavik using high powered speedboats. The camp disbanded in late July when the whales moved further out to sea. Some returned to Aklavik, while others moved to Ptarmigan Bay to fish for char for a commercial fishing company.

The whales were hunted with canoes and outboard motors ranging from 10 - 18 H.P.

The Whitefish Station whaling site is located on low ground, which is flooded during stormy periods.

#### Kendall Island

In 1966 four delta Eskimo families occupied the whaling sites at Kendall Island. They used three scows with 10 H.P. motors and three canoes for hunting whales. They took twelve whales during the season lasting from early July to mid-August, and remained at the island until the latter part of August. They received visits from Inuvik and Reindeer Station people during the period.

Kendall Island formerly was a trapping and whaling location.



The remains of a small settlement exists on the north-west corner of the island. At one period a trapper-trader operated on Kendall Island.

#### Whitefish Station (East side of the delta)

In 1965, five family units were present at this whaling site, (three from Aklavik, one from Reindeer Station and one from Tuktoyaktuk). They used canoes and outboard motors in killing thirteen whales.

Three Eskimo families from Inuvik and Reindeer Station used this site during the summer of 1966. Tuktoyaktuk Eskimos visited the site during whale hunts or during trips to Inuvik.

#### Kidluit Bay - Richards Island

Like Kendall Island, this site is well located in respect to whaling and is used by Reindeer Station Eskimos. Whaling at this site is of a more organized nature, since the proceeds of the hunt form a valuable part of the dog food supply of the Reindeer Project.

#### Hendrickson Island

Despite a strategic position in respect to opportunities for whaling, this location appears to be of little importance. Tuktoyaktuk Eskimos prefer to hunt into Kugmallit Bay, directly from Tuktoyaktuk. A permafrost cellar was constructed on the island for the storage of whale meat in 1963-64.

#### Herschel Island

Herschel Island is of little or no significance in whaling activities due to the distances involved in reaching this location by small boats. Whales are taken at Herschel in late August and September on their westward migration. In 1964, thirteen whales were taken in conjunction with a seal hunting project. Whaling activities have not occurred since that time. The people from Aklavik are normally involved in caribou hunting, during late August and September, or fishing in the Blow River and West Channel areas, or employed in the settlements.

#### Beluga Whale Take - Lower Mackenzie Region (1)

<u>Location</u>	<u>1959</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>
Shingle Point and Whitefish Station	7	20	1	*	*	6	9
Kendall Island	17	52	33	94	*	21	14
Whitefish Station and Kidluit Bay	30	16	11	*	15	8	13



<u>Location</u>	<u>1959</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>
Tuktoyaktuk		30	*	33	30	35	56
Cape Parry and Paulatuk	NIL	NIL	NIL	NIL	NIL	NIL	4 (Argos Bay - Darnley Bay area
	54	88	75	127		70	96

### Potential Quotas

Potential quotas of 500 whales have been given by the Department of Fisheries. There is some indication of relative stability in the whale take, due to limited numbers of Eskimos taking part in the summer hunts and to contemporary hunting methods. Emphasis is placed upon securing sufficient whales to meet individual requirements. Eskimos who are engaged in casual employment during the summer show minor interest in meeting potential markets. Lack of adequate transportation is an inhibiting factor in hunting for potential markets at Aklavik or Inuvik.

Casual observers have frequently commented on the carelessness of Eskimos in the hunting and handling of whales on the whaling sites. There is a tendency to over-emphasize this, since there is little direct evidence to support these observations.

Contemporary hunting techniques are hindered by a lack of adaptation to the resource. Rifles are not the most effective means of hunting sea mammals, where harpooning is required. Harpoon guns have yet to be effectively used in hunting white whales in the region, although a variety of harpoon guns have been used with some success in Alaska.

Increased productivity can be realized from the use of whale nets but these are expensive. In 1961, ninety per cent of the whales taken at Kendall Island were secured in nets. Nylon whale nets, (150 feet in length, 40 meshes deep and 18" mesh size), cost between \$180 and \$200. The nets have an estimated lifespan of three seasons in the delta area. Whaling was organized as a project by a representative of the Department of Northern Affairs and National Resources.

The Eskimos prefer to hunt whales with rifles from boats. The procedure is to wound and then harpoon whales, before they sink. Initially harpooning the whales would prevent losses, but the use of canoes and outboard motors prevents a quiet approach to within harpoon range. Attempts are made to retrieve whales lost in clear, shallow waters but those lost in heavily silted waters are difficult to retrieve.

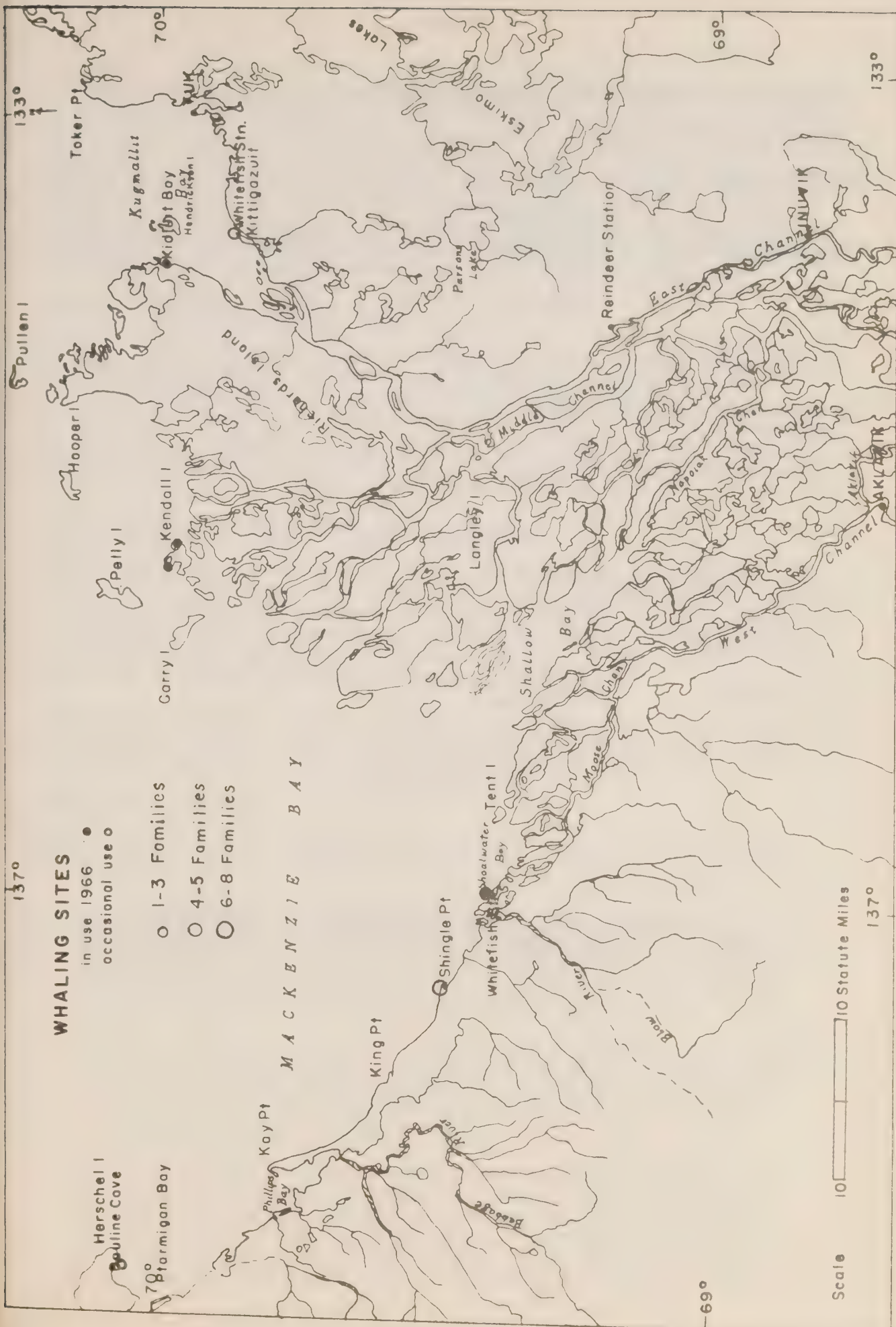
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(1) Compiled from various sources, R.C.M.P., N.A. & N.R., reports of Eskimos taking part in whaling.

\* data lacking

In 1954, a total of 206 whales were reported to have been taken in the Mackenzie estuary (Sergeant, 1962, p.7)







Examples of the Use of Whale Nets in WhalingRecord of Whales - 1961Kendall Island (July 15 - August 20)

<u>No. of Whales</u>	<u>Method of Capture</u>	<u>Male</u>	<u>Female</u>	<u>Juvenile</u>
47	Net	25	22	5
5	Harpoon			

Total: 52 whales

Shingle Point (July 20 - August 16)

18	Net	9	8	3
2	Harpoon			

Total: 20 whales

Record of Whales - 1963 (1)Kendall Island

<u>No. of Whales</u>	<u>Methods of Capture</u>
10	Net
84	Harpoon
4	Lost (including three in nets)

- (1) Possible hunting days 41, actual hunting days 14, netting days four.  
Number of sets three resulting in catch of ten of which three lost.



Utilization of whales is satisfactory, although some Eskimos are inclined to be wasteful in the utilization of whale meat, since the primary objective of the hunt is the muktuk and oil. A permafrost cellar was constructed on Hendrickson Island as part of a winters works program in 1963-64, to encourage Eskimos to store whale meat for winter use. A large community permafrost cellar at Tuktoyaktuk is used for the storage of whale meat and muktuk. Permafrost cellars are also used at Aklavik and Reindeer Station. Water depths in the whaling areas rarely exceed two fathoms in depth. Whale meat is also dried to produce the traditional mikpu or dried whale meat.

### The Food Potentials of White Whales

Beluga whales represent a large food resource. Their average weight at maturity is 750 pounds. Of this fifty per cent is considered to be edible, while the remainder consists of seventeen per cent bone and twenty-five per cent oil. Under conditions of optimum utilization only eight per cent is discarded as complete waste. The small size of belugas has generally limited utilization of this species on a large scale, although the Russians harvest belugas in the Sea of Okhotsk on a commercial basis.

### Commercial Value of Whale Products in the Region

Boiled muktuk and oil are sold at Inuvik and Aklavik in five gallon powdered milk tins, at an average price of \$1.50 to \$1.60 a gallon. A number of Eskimos, who previously went to the whaling grounds and are now employed on a permanent basis or lack transportation from Inuvik, said they have difficulty in securing supplies of muktuk and oil. Semmler handles varying quantities of muktuk and whale oil from year to year.

At Tuktoyaktuk, mature whales are sold at \$35 to \$40 with the processing left to the purchaser. Those who cannot afford to pay are usually supplied by relatives or friends who actively hunt whales.

### Future Trends in Whaling

There is some evidence to suggest that whaling activities will decline in the region. Some of the pertinent factors are the following:

1. A continuing demand for whale products and whale oil exists chiefly among the older elements of the Eskimo population within the delta proper. This may be attributed partially, to inadequate harvests during recent years, and to changing tastes engendered by the acculturation processes among the younger age groups.
2. Continued centralization in settlements will have a bearing on whaling activities. There has been an evident decline in the use of traditional whaling sites. Much of the equipment used in whaling is inadequate, and incomes derived from trapping, are insufficient to bring about a replacement of this equipment.
3. Subsistence methods of handling and preserving whale products do not meet the normal standards prescribed by doctors, who act as health officers in the region, and are aware of the dangers of botulism. Improved methods of food handling have not been devised to overcome this danger at the local level. In 1966, there was some agitation on the part of a new administrator at Aklavik, to have two permafrost



cellars declared unfit for use by a medical officer from Inuvik. Dog food storage pits often have a most unsanitary appearance, while not apparently affecting the quality of the dog food.

4. Cases of botulism or suspected botulism and trichinosis are given wide publicity by health authorities.

There is ample evidence to support the view that whaling could be carried out on a relatively large scale, with a potential of approximately four hundred whales not being harvested on an annual basis, at the present time. The use of beluga hides in leather production, would increase the potential of the tannery project at Aklavik. Whale meat could provide substantial amounts of dog food, without great expenses being involved in processing through the use of permafrost cellars. The tourism potentials of beluga hunting will be dealt with in the chapter on tourism.

### Large Boats

A number of observers have commented on the decline of schooner type boats in the region, and the inability of local trappers and hunters to replace these. This must be considered in the light of present settlement trends. There is a minor amount of activity carried out in the Arctic coastal areas in comparison to the trapping era, which ceased with fur price declines in the nineteen fifties. The schooners, with minor exceptions, were brought into the region during the whaling and immediate post-whaling era. No local source of supply of this type of vessel has evolved in the region.

It appears that increased availability of this type of vessel would not effectively bring about a re-occupation of abandoned resource areas. Many of the people formerly pre-occupied with subsistence activities in coastal areas, can now be found well-established in settlements located some distance from the coast. The limited scale of whaling activities does not appear to justify increasing the number of schooners or whaleboats, through various forms of government assistance.

However, there appears to be some validity in assisting local owners of larger coastal craft to maintain and repair vessels currently in use.

Four 24' seine skiffs were built by the Industrial Division, in 1962, at Inuvik. These have inboard engines and a speed of five to six knots per hour. They are equipped with rollers at the sterns for setting fish and whale nets. They were progressively used at Kendall Island, Baillie Island and Herschel Island for fishing and sea mammal harvesting. Cost of producing this type of boat locally, using imported materials, is estimated to be \$3,500, not including the engine.

One boat was placed on loan to a Delta Eskimo for fishing and whaling in the summer of 1965. In 1966, two of the boats were loaned to Eskimos for use in whaling, but they were used primarily for transportation being superseded by canoes for hunting.

### The Unused Potential

On the basis of the 1966 whaling operations in the lower Mackenzie region,



there is an unused potential of approximately 400 whales, well dispersed over the total catching area.

This represents approximately 300,000 lbs. of whale of which an estimated 276,000 lbs. of material could be utilized. At the subsistence level, the hide is commonly consumed as muktuk.

Elsewhere it has a commercial value. At Pangnirtung for example, beluga hides are purchased at \$1.25 a lb. for shipment to a leather goods firm in the United States. An average beluga hide weighs between eight and nine pounds in raw form ready for shipment.

The leather is lacking in grain and has been used in the manufacture of shoe laces and belts. The establishment of a tannery at Aklavik in 1965-66, expands the potentials for organized whaling in lower Mackenzie region.

The development of mink ranching would expand the market for whale meat and bone.

It seems unlikely that the currently used subsistence methods and equipment could result in an increased harvest. However, organized whaling projects have been conducted at Kendall Island with some success. This requires direction from an enthusiastic and capable projects officer, who is able to work with the local people and could overcome the difficulties of changing haphazard subsistence methods.

#### The Potentials for Cannery Development

A small cannery at Tuktoyaktuk might be contemplated to increase the returns from the resource base through processing of whale. Tuktoyaktuk hunters conduct daily hunts into Kugmallit Bay during the whaling season. The distances between Tuktoyaktuk and the main hunting grounds, are less than those for hunters from other settlements in the region. In 1966, Tuktoyaktuk hunters produced primarily to meet the settlement's needs and made no attempt to market produce elsewhere. There was an over-all decline in whaling when they felt they had secured enough and an absolute decline in interest.

Processed, or semi-processed whale products, could be moved elsewhere in the region by N.T.C. barge, provided the products were shipped in proper containers. Costs of shipping are estimated not to exceed four cents a pound to Inuvik and Reindeer Station, while costs to Fort McPherson would be eight cents a pound.

The summer reindeer slaughters were held at Atkinson Point in 1965 and Warren Point in 1966. Both locations are accessible from Tuktoyaktuk by boat. This would permit the transportation of carcasses for processing to a cannery at Tuktoyaktuk. In the autumn of 1966 a slaughter of reindeer was held in the immediate Tuktoyaktuk area.

A cannery for processing both whale and reindeer products, would be advantageous in terms of costs and employing local labour. The use of processed whale products within the region would balance the apparent decline of use at the subsistence level. Over the long-term specialty foods processing of whale, reindeer and fish appears to be feasible.



### Bowhead Whaling (*Balaena mystecitus*)

In recent years, there has been considerable speculation as to the feasibility of Bowhead whaling in the region. This has been due to increased sightings of Bowhead whales. Commercial whaling in Arctic regions resulted in disastrous reductions in Bowhead whale stocks, and they have been subject to international protection for many years, although they may be hunted by Eskimos for food.

An adult Bowhead may reach 20 metres in length and 80 to 100 tons in weight. One whale may yield 20 to 30 tons of oil, ten tons of edible meat and quantities of raw material for leather.

An interesting account of Alaskan whale hunting is continued in Milan's work, (1964 p. 33). Along the north-west Alaskan coast, the hunting of whales is still carried on as part of the subsistence economy.

Alaskan immigrants to the lower Mackenzie region have manifested the greatest interest in the potentials of Bowhead whaling. The logistics involved in hunting and utilizing Bowhead whales cannot be adequately assessed until a realistic attempt is made to secure this resource. An Alaskan Eskimo with a suitable boat made an abortive attempt to hunt Bowhead whales during the summer of 1966. He was supplied with a harpoon gun and other equipment by the Department of Northern Affairs and National Resources. An expedition to the Herschel Island area ended at Shingle Point due to engine failure.

The increased tendency for many Eskimos to be on the Arctic coast for short-term periods is an obvious deterrent to catching Bowhead whales. During the whaling era, the whalers were constantly patrolling the offshore water during the summers. The poor condition of schooners and other large boats owned by local residents, is a factor in inshore travelling. Bowhead whaling in the lower Mackenzie region calls for the use of seaworthy vessels well offshore.

### The Seal Potential in the Beaufort Sea and the Arctic Coastal Region

The major seal species available in the lower Mackenzie region is the Ring or Ringed seal, *Phoca hispida*, a small hair seal species, averaging seventy-six pounds in weight. This species is well distributed along the western Arctic coast of Canada and Alaska, frequenting quiet bays and inlets. The pups are born in aglus in February, March or April. The ringed seals of the western Arctic display a minor tendency towards a west-east migratory pattern.

Ringed seals avoid the heavily silted water in Kugmallit or Shallow Bay, although individual seals, both Ringed and Bearded, have been reported in the West Channel as far as Aklavik. Seals are also reported to enter the Eskimo Lakes from Liverpool Bay.

Ringed seals occur in large numbers in Hutchinson Bay, McKinley Bay, Liverpool and Franklin Bay. Abrahamson, (1963, p. 86, 87), commented on seal utilization by the Tuktoyaktuk Eskimos, and drew attention to the limited part this resource played in the local economy.



Westward, the R.C.M.P. detachment at Herschel Island, relied on seals as a source of dog food until the detachment closed in 1963. The major catching area was Pauline Cove and Thetis Bay.

The Bearded seal, *Erignathus barbatus*, occurs in the Beaufort Sea area, but is more sporadically available to Eskimos hunting close inshore in small boats. It is most easily taken in summer when pack ice drifts inshore, due to winds, and bearded seals can be spotted and killed on ice pans.

The bearded seal is a much larger animal than the ringed seal and averages 465 pounds in weight. The bearded seal is non-gregarious in nature. Its food consists of prawns, benthonic fish, (sculpins, etc.) and bivalve molluscs.

Harbour seals, *Phoca vitulina*, occur throughout the western Arctic coastal zone, but are encountered in such small numbers they cannot be considered a resource.

### The Herschel Island Sealing Project

Due to the limited utilization of seals in the lower Mackenzie region, the Department of Northern Affairs and National Resources in 1964, placed a sealing specialist at Herschel Island, in the hopes of reviving interest in seals as a resource among Eskimos of the region.

The sealing project was conducted between August 4 and September 21, 1964. One hundred and forty-four ringed seals and one bearded seal were taken by members of the project, which included four Eskimo families from Inuvik and Aklavik. Two other groups, consisting of Eskimos and Metis, and a white prospector trapper from the Aklavik and Inuvik area, and three Eskimo families from Tuktoyaktuk, operated independently at Herschel, during the same period, and took a total of 410 seals. The grand total for Herschel Island, from August 4 to September 21, totalled 555 ringed seals, one bearded seal and thirteen white whales.

After September 21, when the sealing specialist left Herschel Island and returned to Inuvik, 155 seals were taken in nets and 145 were taken by other means. Thirty-two people remained at the Herschel Island settlement of which eight could be considered hunters. The Tuktoyaktuk hunters returned to Tuktoyaktuk by boat.

The Metis and white trapper were attracted by high sealskin prices. The white prospector trapper turned his seal meat over to one of the Eskimos. He devised a home method of tanning sealskins and disposed of his sealskins at good prices of \$35 to \$40 at Inuvik.

In 1965, the project was not resumed and the sealing specialist was transferred to Cambridge Bay. Three Eskimo families spent the summer

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- (1) The Metis hunters indicated they would not hunt at prices below \$10-11 a sealskin, as they considered hunting in the coast to be uneconomical below that price range due to distance, gas consumption in moving to the hunting grounds and limited use of meat.



# SEALING ZONE



135°

130°

Sachs Harbour





period of 1965 on Herschel Island, but showed little interest in seal hunting.

In 1966, no activities occurred along the Yukon coast, although a commercial fishery was in operation. Lack of interest may be traced to a decline in sealskin prices.

Eskimos familiar with the Yukon coast, maintain that sealing becomes good only in late August and September, when periods of darkness become longer and seals do not see the nets.

A number of sealskins are privately sold at Tuktoyaktuk, Inuvik and Aklavik. It is interesting to note that in 1965, sealskins were ordered from other locations by the Tuktoyaktuk fur garment shop, due to a lack of tanning facilities and a preference for better marked skins from other areas (i.e. Holman Island).

Sealskin dropped seriously in price to \$4 and \$5, then climbed slowly in some markets.

#### Sealskins Traded 1964-65 - Tuktoyaktuk

<u>Range of Numbers Traded (1)</u>	<u>No. of Hunters</u>
1-5	14
6-10	9
11-15	3
16-20	
21-25	
26-30	1

#### Sealskins Traded 1964-65 - Inuvik

<u>Range in Numbers Traded</u>	<u>No. of Hunters</u>
1-5	4
6-10	1
11-15	
16-20	
38	1
155	1 (1)
183	1 (11)

Sealskin prices appear to have become the major determinant in increased seal harvests in the lower Mackenzie region. At Tuktoyaktuk, the easiest access population centre with ringed seal stocks in the Beaufort Sea, seal is a resource secondary to both white whalers and fish.

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(1) One hunter traded 66 sealskins

(1) White/Indian

(11) Eskimo (Central Delta group)



Potential Utilization of Seals

Ringed Seal - average weight 76 lbs.

Bearded Seal - average weight 465 lbs.

	<u>% Total Body Weight</u>	<u>% Total Body Weight</u>
Man or dog	27	25
Dog or waste	9	9
Blood	5	5
Bone	16	16
Blubber	32	27

Seal Take by Tuktoyaktuk Hunters

<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
150 (taken)	850 (taken)	305 (taken)

The 1964-65 returns are indicative of a decrease in prices for sealskins.

Seasonal Fluctuation in Number of Seals Traded at Tuktoyaktuk Jan. - Dec. 1964

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	18	3	6	13	5	13	58	75	163	32	3

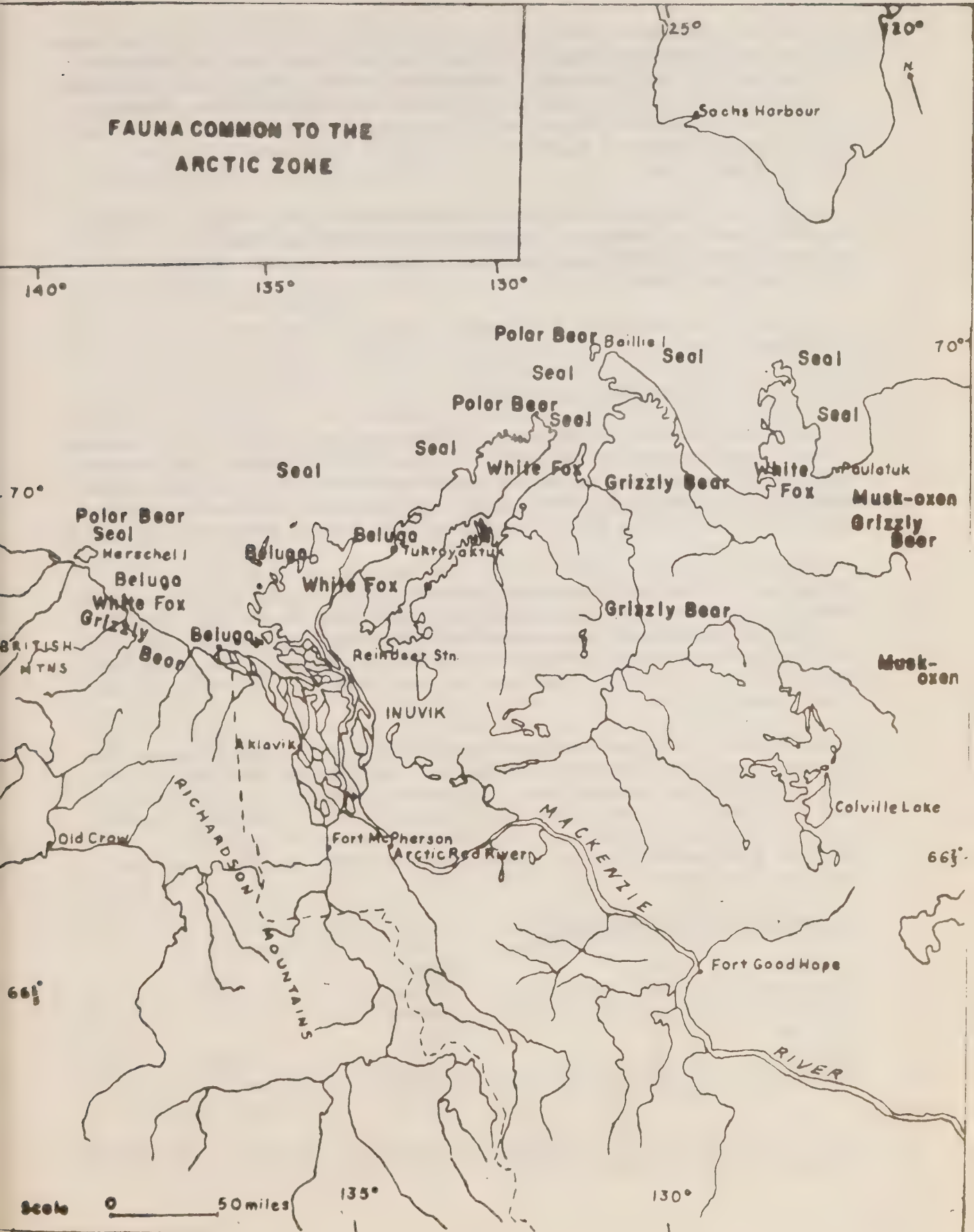
July, August and September are open-water hunting periods. In April, May and June seals may be taken on the ice. In winter the floe edge, which is normally fifteen to twenty miles north of Tuktoyaktuk, may be extended much further seaward in winters of extreme cold.

Total Number of Sealskins Traded in the Lower Mackenzie Region

	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
Tuktoyaktuk	84	129	189
Aklavik		1	387
Inuvik			522
Reindeer Station		8	22



**FAUNA COMMON TO THE  
ARCTIC ZONE**





### Walrus

The walrus, (*Odobenus divergens*), is extremely rare in the coastal areas of the lower Mackenzie region. Single animals have been infrequently killed, (1911, 1931, 1950's), at Herschel Island. Historical reference to walrus would seem to indicate either a total destruction of small herds in the Beaufort Sea in the 19th century, or an extreme reduction in the outer limits of migratory patterns of herds moving in the Bering Strait area.

In 1966, two walrus were reported sighted and killed but not retrieved by Sachs Harbour Eskimos. These were presumably specimens of Atlantic Walrus, (*Odobenus rosmarus*), from the Viscount Strait, Melville Sound area.

Due to over-all scarcity, this animal cannot be considered to be a resource.

### Polar Bear (*Thalactaros maritimus*)

Polar bears occur in the coastal regions and are taken in small numbers along a wide front from Herschel Island to Baillie Island. At one time, substantial numbers of polar bear skins were traded at Herschel Island and Aklavik. Today, the main production center is Tuktoyaktuk, with one family at Baillie Island accounting for a major proportion of the kill.

Essentially a marine animal, they occur near or on land, due to a dispersal of ice during the open-water season. During late winter and early spring, they are encountered along the floe edge. The Wolkis of Baillie Island, who are renowned as polar bear hunters in the region, report that polar bears become plentiful due to the drift in and grounding of old ice from the ice pack front. This does not occur every year.

A decline in extensive coastal travel by Eskimos is a major factor in limited polar bear takes in the region. Interest on the part of non-resident white populations, particularly employees of radar bases, has resulted in a greatly increased price for this species in recent years. Abrahamson, (1963, p. 78), quoted a price of ten dollars a foot or \$100 to 150 a skin. This price has risen to \$350 for a top quality large skin.

### Polar Bear Take - Tuktoyaktuk

1952-53	21	1958-59	4
1953-54	3	1959-60	5
1954-55	12	1960-61	4
1955-56	5	1961-62	4
1956-57	4	1962-63	6 - Tuk. & C. Parry
1957-58	24	1963-64	13
		1964-65	26

The current world status of polar bear has been the subject of meetings between the United States, Canada, the U.S.S.R. and other countries.



FORESTRY

The potentials for lumbering are restricted to rather narrow, well-defined zones in the southern part of the region, where climatic and soil conditions are adequate to support stands of timber of some commercial value.

Tree Species of Commercial Value

As may be expected, the major tree species of commercial value is the white spruce (*Picea glauca*). Black spruce is less available and found in less suitable logging areas. Balsam, poplar and paper birch are of little economic importance, since they exhibit small diameters and exist in scattered stands.

Despite a generally low opinion of local lumber, prevalent among residents in the region, white spruce lumber samples indicate a high fibre density and a freedom from knots. A series of tests, conducted by the building research division of the National Research Council in 1964, indicated the quality of white spruce from the region to be comparable with spruce lumber from other parts of Canada. Testing of samples of white spruce lumber for construction strengths by a Montreal firm in 1966, indicated that the white spruce lumber was suitable for general construction purposes.

Tree Ring Chronology

While there has been limited research carried out in respect to forest ecology in the region, some samplings have been done in respect to tree ring chronology. Growth rates of white spruce are affected by short growing seasons, the presence of permafrost and low precipitation. Giddings, (1947, p. 26-29), took samples from white spruce in the region. His findings revealed extremely slow growth rates. White spruce with diameters of eight inches were estimated to be approximately seventy-five years of age, while those with diameters of fifteen inches were approximately two hundred and fifty years in age.

The Forest Resource

Original estimates of ten million cords of lumber in the delta proper were given by Forestry officials in 1959. These were arrived at by air photo interpretations and ground operations. On a basis of one per cent being suitable for sawlogs, this would make fifty million board feet available for logging operations.

This would permit a cut of two million board feet per year over a 25 year period, or one million board feet per year over a fifty year period.

Further surveys have been conducted by forestry personnel in the lower Mackenzie region, during the summers of 1965 and 1966.



These have reduced earlier estimates and revealed superior lumber resources in the southern part of the region in the upper delta and along the Peel and Arctic Red Rivers.

Within the delta proper stands of spruce timber are well distributed through the southern portion. In the northern portions of the delta there is a pronounced tendency for stands of white spruce to occur as "island stands", surrounded by expansive growths of alder and willow. The commercial potential of white spruce in the northern part of the region, is reduced through small dimensions, although suitable logs for pilings or the construction of log cabins, can be easily had in the vicinity of the Napoiak Channel and Reindeer Station.

Along the Peel River and the Arctic Red stands of spruce are extensive, being broken only intermittently by willow and alder growth on lower elevations and superseded by scattered birch and poplar on higher elevations.

Excellent stands of timber occur in the Snake River area but these may be now deemed inaccessible due to the distances, (200 miles), involved in getting them to mills.

#### Forest Inventories 1965-66

	<u>Estimated Resource</u>	<u>Aerial Extent</u>
Upper Delta Area	15,000,000 Fbm.	3,000 acres
Arctic Red River*	17,000,000 Fbm.	2,100 acres
Peel River	<u>10,000,000 Fbm.</u>	<u>1,200 acres</u>
Total	42,000,000 Fbm.	6,300 acres

#### Forestry and Lumbering

Since the establishment of settlements in the region a number of small sawmills have been operated to meet local needs for lumber. The small sawmills have represented essentially "pioneer phases" in resource development. The majority of the small sawmill operations have been marginal and have shut-down in the face of competition from imported lumber and limited markets for local lumber.

Recently, government activities in the region have included a Department of Northern Affairs and National Resources logging project in the central and southern part of the Mackenzie Delta, and a sawmill project at Aklavik. The Mackenzie delta logging project originated out of a small welfare logging project, operated by the Rehabilitation Centre of the Department of Northern Affairs in 1959.

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\* Cutting operations along the Arctic Red in the autumn and early winter of 1966 have indicated this to be a high estimate with much lower estimates (2,000,000 Fbm) being given as a result of preliminary cuttings by organized logging crews.



An Indian Affairs sawmill erected in 1961 at Fort McPherson, has been used \* to produce semi-finished lumber for use in Indian Affairs housing programs. An itinerant sawyer provides supervision in milling for a period of two to three weeks. A private entrepreneur operated a small mill upstream on the Peel in recent years. Both have been small operations with minimal equipment and have been used for the production of rough lumber.

A Metis trapper at Fort McPherson operates a small, primitive logging and sawmilling outfit a few miles downstream from Fort McPherson. This is essentially a one-man operation to produce lumber for personal use in building a new home.

#### Use of Firewood at Fort McPherson

At Fort McPherson, a forest reserve has been established within a four mile radius from the settlement, to protect the fuel requirements of local residents from local lumbering operations. A cord of wood in four-foot lengths is valued at \$20.00 in Fort McPherson, whereas a drum of fuel oil is valued at \$14.40. Firewood is provided on a free basis as a welfare measure, to those who are unable to secure their own supplies for reasons of health or old age.

In the summer, fuel gathering consists of gathering up scrap wood from construction projects in the settlement, or small sticks and poles available in the undergrowth surrounding the settlement or along the river banks. Similar methods are used in other settlements such as Aklavik and Arctic Red.

In the winter, dog teams are used to haul firewood into the settlements. Some people hire bombardiers or muskeg tractors to haul in firewood they have cut at various locations.

While the Tuktoyaktuk people have complained about the lack of driftwood for fuel, large deposits of driftwood were noted from the air in 1966 within easy access of Tuktoyaktuk. A lack of organized collection procedures in the summer usually results in a scarcity of fuel during the winter. Also, the people are actively engaged in other activities during the summer.

While there would appear to be opportunities in some settlements for the establishment of businesses dealing in firewood, the low income of the potential purchasers is an inhibiting factor. Also, the profit margin would be extremely small using local labour in the production of firewood for sale.

#### Procedures Involved in Logging

One of the inherent weaknesses in the Mackenzie delta logging project has been the tendency to attempt to spread income among as many people as possible. A quota system, based on the requirements of the Aklavik sawmill

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\*An Indian Affairs sawmill has also been in use at Fort Good Hope for the same purposes.



operation, has been used in logging. In the past six years, the quotas have been based on anticipated annual productions of 500,000 bd. ft. of lumber. In all years, production has been well below that figure.

In January of each year, quotas for logs have been distributed among interested individuals based on the amount to be cut and the estimated income needs of various individuals. Quotas for single men have been smaller than those for married men with families to support.

The actual work of logging has been left up to the individual. The logging has taken place in February and March when daylight conditions have improved and dog teams can be used in skidding logs out of the bush.

Winter logging by men used to cutting firewood in the easiest possible manner, resulted in high stumpages (2 - 3 ft.) in the logging areas. The use of dog teams is feasible in handling short lengths or poles of small diameters. However, it is difficult to move large logs of good sawmill diameters. As a result, loggers in the region have shown a tendency to produce eight foot logs from trees suitable to be cut in sixteen foot lengths. Also loggers have tended to short-cut their logs. Personal observations on cutting sites indicated that loggers frequently ignored large trees due to the physical difficulty in handling them.

The error of permitting loggers to choose their own logging sites has been repeatedly proven. Some loggers selected sites with suitable stands and then found they could not get the logs to riverbank locations for rafting purposes. Other loggers cut up small creeks, where there was little or no hope of getting logs out even during high water.

A partially successful attempt was made in 1965 to have loggers cut on three main sites selected for suitability of logging and rafting purposes.

The use of hand labour in piling logs on riverbanks has been one of the factors involved in cutting short lengths and smaller logs easily handled by parties of men working together.

#### Checking or Piling of Logs

Wide, gently sloping riverbanks have provided difficulties in checking or piling logs where they could be rolled with ease into the rivers for collection into rafts. In some cases, the danger of flooding resulted in logs being piled too far back from the water. Rolling logs in soft delta mud has proved to be a difficult process. Rafting takes place after flooding dangers have passed.

#### Logging Operations in the Delta Proper

In the central portion of the delta logging operations have been carried out along the Schooner, Esau and Enoch Channels, up to forty miles east and south-east of Aklavik. The logging has been done by persons from Aklavik or trappers resident in the area.

Logging operations have also been carried out along the East Channel upstream from Inuvik and in the Gull River, Campbell Lake area. In



these areas the emphasis has been on the production of logs suitable for piling, and power poles at Inuvik.

### Logging Operations on the Peel and Arctic Red Rivers

Logging operations on the Peel River have taken place along the west side of the river, from Fort McPherson to the mouth of the Husky Channel. Cutting operations have been widely scattered within this general area, but within limited distances of the river to permit the use of dog teams in skidding operations, and to take advantage of superior stands of timber located on levees.

The Arctic Red River loggers have made scattered cuttings up to thirty miles up the Arctic Red River on both sides. Individual logging operations have been small.

### Scaling of Logs

The scaling of logs in widely scattered locations has been carried out by a number of people ranging from the sawyer at the Aklavik sawmill to the Indian Affairs agent at Fort McPherson. Scaling is accomplished through the use of the International Log Rule and payment is based on the estimated board feet of cut. Delays in scaling and payment in the past, have caused some anxiety among loggers with immediate need for payment to meet debt obligations or obtain further supplies.

While the need for conservation can be over-emphasized in a region where the potential resource can only be exploited on a limited basis, there has been an absolute need for establishing good practises on the cutting sites and assisting men to become skilled loggers. Improved practises would eliminate some of the difficulties being experienced by loggers working under severe physical conditions.

There is every reason to expect that younger men could become more involved in lumbering as a source of income, rather than a source of "pocket money" in small amounts. Good potentials for adult education have been thus far overlooked in respect to the lumbering projects.

Widely scattered logging areas have prevented direct supervision in the past.

### Logs Drives

Preparations for driving logs consists of getting the logs into the water and booming them, surrounding them with a boom composed of logs tied end to end. In areas where commercial logging is carried on, the standard procedure is to use chains for fastening boom logs together. The practises of individual loggers have varied in the lower Mackenzie region from tying boom logs together with ropes, to driving spikes in the logs and using short lengths of wire or cable, both unsuitable methods where physical conditions add to the difficulty in driving logs over long distances to the mill. The use of spikes added to the difficulties experienced in handling the logs at the Aklavik sawmill.



### Getting the Logs to the Mill

Log drives from cutting sites on the Peel River to Aklavik have involved distances of up to 80 miles using the Peel Channel, while those from Arctic Red River have involved distances up to 170 miles. The meandering nature of the Peel and Aklavik Channels in the delta proper, have added to the difficulties in driving logs.

The use of scows or canoes powered by outboard motors have limited the potential for towing log rafts and have resulted in the rafts being guided, rather than towed, and moving with the current. Long straight stretches of river, such as exist in the area between Point Separation and Arctic Red River, have created hazards in periods of high wind, when persons moving rafts to the Aklavik sawmill, could merely attempt to guide rafts into safe anchorages or abandon them in hopes of retrieving them after the wind has died down. Costs as high as \$70 a thousand, have been involved in rafting logs in the delta area.

### Summer Versus Winter Logging

The Arctic Red River area offers a number of attractive sites for summer logging along the Arctic Red River, where the land is firm and well drained. Compact soil conditions and good stands of timber are in existence in this area.

While little or no summer logging has been carried out of the lower Mackenzie region, it would provide a source of income for hunters and trappers in the southern part of the region. July and August are the periods of little economic opportunity at Fort McPherson and Arctic Red River. Trapping has long ceased and hunting is difficult. By mid-August, the insect hazard has abated in the bush. The movement to the trapping grounds begins in mid-September. Summer logging is feasible on well-drained sites with firm ground, where tractors can be used in hauling logs to the river, or to on-location mill sites.

River depths on the Arctic Red River vary along its lower reaches, from depths of two feet to ample depths for the use of small river boats with shallow drafts. Residents of Arctic Red River point out that the river depths increase in early autumn during rainy periods. Long periods of high wind intensity also tend to increase depths along the lower stretches of the river through the back-up of waters on the Mackenzie.

While there are straight stretches of the river which offer good opportunities for short open drives, the existence of sandbars and islands at scattered intervals would prevent extensive use of open-drive methods.

### Logging as a Source of Income

#### Numbers Employed in Logging from Delta Settlements 1961-62

	<u>1961-62</u>	<u>Income</u>
Aklavik	22	\$4,370.00
Inuvik	19	2,761.95
Fort McPherson	44	13,624.80
Arctic Red River	6	480.00
Totals	91	<u>\$21,236.25</u>



While the number of loggers increased by sixteen in 1962-63, production decreased and there was a substantial amount-decrease in income.

Numbers Employed in Logging from Delta Settlements 1962-63

	<u>No. of Loggers</u>	<u>Income</u>
Aklavik	24	\$7,151.14
Inuvik	16	332.05
Fort McPherson	57	11,653.33
Arctic Red River	<u>10</u>	<u>1,640.09</u>
	107	\$16,766.63

Treaty Indians realized the greatest total income from logging and received 78.5 per cent of the monies paid for logs. They were followed by local whites and Metis who received 18.5 per cent of the monies paid for logs. Eskimos cutting logs from Aklavik and Inuvik, received only three per cent of the total amount.

In 1963-64, there was a further decrease in the total amount paid for logs in line with a decrease in production. Records are not available to clearly indicate the distribution of loggers from various delta settlements and the distribution of income. However, a total of \$13,500.00 was paid for logs by the Department of Northern Affairs and National Resources.

Numbers Employed and Income by Settlement 1964-65

	<u>No. of Loggers</u>	<u>Income</u>
Aklavik	17	\$6,218.01
Inuvik	-	-
Fort McPherson	28	6,705.99
Arctic Red River	<u>9</u>	<u>795.20</u>
Total	54	\$13,719.30

Difficulties have been experienced in attempting to assess the logging project over a long-term basis, due to the continually changing nature of the reporting methods. One of the more important recommendations of the Forrestal Report in 1965, on the Mackenzie delta logging project, was the one involving a standardization of reporting and accounting procedures in field operations. The Forrestal Firm in Vancouver was hired to investigate production methods in 1965.



The Logging Project 1965

A brief summary of the 1965 logging operations is included in the report.

LOGGING PROJECT 1965Log Cutting Phase

A. McPherson - Logs cut 3,900	Amount Paid	\$6,705.99
B. Arctic Red - Logs cut 525	Amount Paid	1,795.20
C. Aklavik - Logs cut 3,004	Amount Paid	6,218.01
Fuel Costs		395.95

Total Cost of Cutting	\$15,115.15
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This is the figure actually said after deductions for stumpage.

Driving Phase

Logs received at mill from -

A. McPherson	2,193
B. Arctic Red	288
C. Aklavik (Pokiak)	1,865
Total logs received	4,340
Logs lost or left	3,083
bush	

No scaling done at the mill so board footage is based only on mill production figure of 276,088 bd. ft.

Cost of Log Drive

A. Wages - Boat, Crew and Loggers	\$3,733.50
B. Fuel	312.00
C. Misc. (Ropes, Boat Rations, etc.)	401.22

Total	\$4,446.72
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Total Cost to get 276,088 bd. ft. to the mill

A. Cutting	\$15,115.15
B. Driving	4,446.72
Total	\$19,561.87

Cost per bd. ft. delivered to mill - \$.07 per bd. ft.  
or \$70.00 per 1,000 bd. ft.

Whereas the cost here per board foot shows 7¢, had delivery been received all the logs cut, the price would have been reduced to around 4¢ per bd. ft.



Examples of:

Incomes Derived from Northern Affairs Logging Programs at Ft. McPherson 1965

<u>Loggers</u>	<u>Lin Feet</u>	<u>Amt.</u>	<u>Stumpage</u>	<u>Balance Payable</u>
1	6.130	183.90	6.13	177.77
1	14.420	432.60	14.42	418.18
1	295	8.85	.29	8.56
1	2.077	62.31	2.08	60.23
1	4.666	139.98	4.67	135.31
1	3.255	97.65	3.25	94.40
1	5.085	152.55	5.08	147.47
1	14.150	424.50	14.15	410.35
1	1.255	37.65	1.25	36.40
1	1.540	46.20	1.54	44.66
1	10.615	318.45	10.62	307.83
1	10.068	302.04	10.07	291.97
1	6.870	206.10	6.87	199.23
1	6.545	196.35	6.54	189.81
1	11.471	344.13	11.47	332.66
1	1.861	55.83	1.86	53.97
1	7.262	127.86	4.26	123.65
1	1.850	55.50	1.85	53.65
1	8.750	261.15	8.70	252.45
1	17.312	519.36	17.31	502.05

Extreme variability in the amounts cut can be noted from the statistics offered above. The logging program has been of considerable value to Fort McPherson people in providing money for grubstakes to undertake spring muskrat trapping activities, following the low income period, resulting from caribou hunting on the Peel Plateau and in the mountains in mid-winter.

Other Logging Programs

At Fort McPherson, logging has been carried out under a variety of programs. An example of this is the logging program in 1965-66 charged to reforestation. While the amount of funds available was small it provided some income for the eight loggers involved in the project. Use of funds in this manner illustrates the need for substantial sources of employment in the community.



Examples of Incomes Derived from the Community Employment  
Logging Program at Fort McPherson in 1965-66

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<u>Loggers</u>	<u>Lin. Ft.</u>	<u>Amt. Earned</u>
1	200	\$50.00
1	100	25.00
1	320	80.00
1	92	23.00
1	100	25.00
1	380	95.00
1	100	25.00
1	300	75.00
1	300	75.00
1	300	75.00
1	100	25.00
1	100	25.00
1	300	75.00
1	398	99.50
1	300	75.00
1	200	50.00
1	300	75.00
1	52	12.99
<u>1</u>	<u>105</u>	<u>26.25</u>
19	4,763	\$1,190.74



Fort McPherson Logging Program Charged to Reforestation 1965-66

<u>Loggers</u>	<u>Lin. Ft.</u>	<u>Amt.</u>
1	48	12.00
1	100	25.00
1	200	50.00
1	120	30.00
1	100	25.00
1	300	75.00
1	240	60.00
1	100	25.00
<u>Totals</u> 8	1,208	\$302.00

A program of cutting logs for sidewalk construction in Fort McPherson in 1965-66, resulted in a total expenditure of \$3,668.05 in payments to forty-four loggers. Again, individual payments were small from attempts to distribute available income among as many workers as possible.

Examples of Arctic Red River Incomes Derived from Community Logging Program 1965-66

<u>Loggers</u>	<u>Lin. Feet</u>	<u>Amt. Earned</u>
1	700	175.00
1	800	200.00
1	400	100.00
1	100	275.00
4	2,000	750.00

Examples are available which show the comparative costs involved in delivery of logs by various individuals from the settlements, and those involved in log drives, organized by the Industrial Division of the Department of Northern Affairs and National Resources.

Incomes Earned from Driving Logs 1961-62

<u>Settlement</u>	<u>Number of Men Employed</u>	<u>Log Footage Delivered</u>	<u>Total</u>
Fort McPherson	10	32,428	1,780.40
Aklavik	9	11,544	811.20
Inuvik	5	10,638	530.90
Arctic Red River	2	3,560	178.00
Total	26	58,170	\$3,300.50

In 1961-62, 41.3 per cent of the logs cut were delivered.

In 1965, the total cost of an organized driving amounted to \$4,446.72 and resulted in production of 276,088 bd. feet at the mill. Sixty per cent or 4,340 logs of the total estimated cut of 7,423 logs were received at the mill. An increase of 18.7 per cent in recovery of cut logs was



realized through organized drives. Estimated costs of delivery amounted to two cents per bd. ft. while costs of cutting amounted to five cents a bd. ft. Total costs of cutting and delivery to the mill amounted to \$70.00 per 1,000 bd. ft. This is an excessive cost in comparison to logging operations elsewhere in the N.W.T.

#### Local Contracts for Pilings and Power Poles

Since all major construction at Inuvik has been placed on closely spaced spruce pilings sunk in permafrost, this has been a relatively important aspect of logging operations in the lower Mackenzie region. Contracts for the cutting and delivery of pilings have been issued by various government and private agencies, to residents of Inuvik and trappers living along the east channel. Contracts have also been issued for the production of power line poles.

In 1965, for example, three contracts having a total value of \$9,965.00, were issued for the cutting and delivery of piling and power poles at Inuvik. These contracts were taken by two local whites and a Metis, who cut pilings and poles along the east channel above Inuvik and rafted them into the townsite. Minimal amounts of equipment can be successfully used in this type of operation.

#### The Pokiak Point Mill

The sawmill of the Department of Northern Affairs and National Resources originally was located at Pokiak Point, one quarter of a mile across the west channel of the Mackenzie from Aklavik. The site offered a protective holding location for logs at the mouth of the Pokiak Channel. However, ground conditions quickly deteriorated during rainy periods and logs had to be hauled by tractor up a steep bank incline. The use of a jack ladder was considered to be too expensive for a seasonal operation. Also a lack of power necessitated the use of a small diesel plant. Sawmill employees recruited from Aklavik, had to use water transportation to reach the mill site and return home each day. In addition, repairs to machinery could only be effected at Aklavik. Lack of disposal methods for slabs and sawdust added to maintenance problems.

The difficulties experienced in sawmill operations resulted in consideration being given in 1965, to locating the sawmill at Aklavik, where there was power available and extensive use of water transportation in commuting was unnecessary.

Recently, proposals have been advanced for relocation of sawmill operations at Inuvik, where there are increased possibilities for the establishment of sound mill production procedures, where repair services for mill machinery are more available and there is a greater market potential for finished lumber.

#### Milling Costs

The following examples are available to indicate the cost of milling at the Aklavik sawmill. The milling phase is normally a summer operation carried out during July and August, although in 1965, milling operations continued until October.



Operating Costs Aklavik Sawmill1961

Wages	\$15,270.24
Gas and Oil	696.00
Rental Eq.	792.75
Total	\$16,758.99

1965

Wages	\$11,949.51
Fuel	666.95
Parts	155.00
Total	\$12,771.46

The costs of milling have varied in accordance with volumes of lumber produced. Value of production in 1961 was placed at \$50,937.00, but this included milling of logs produced in 1960. Value of production for 1965 was reported to be \$37,969.32.

An investigation of mill yard inventories over the years, indicates that inventories have been high, in line with the limited market potential for lumber in the region.

Lumber Recovery

In a region where log diameters are relatively small, (averaging 12 - 20 inches), it is worthwhile to examine the potential lumber recovery. G.E. Bell, (1957 p.6), in an examination of lumber recovery in small milling operations handling spruce and other species in eastern Canada, produced the following results:

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<u>Diameter Class</u>	<u>Lumber Recovery</u>
<u>Inches</u>	<u>Per Cent</u>
8	46.5
9	48.5
10	49.5
11	51.2
12	53.2
13	55.0
14	57.0
15	58.5
16	60.0

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Potentials recovery increases with diameter in sound, straight logs. In the lower Mackenzie region where economy in operations and lumber recovery from sawmilling operations is essential, selective cutting on mature stands becomes of primary importance.



In the lower Mackenzie region, under existing sawmilling conditions, logs cut on the Arctic Red River have averaged eight to ten logs per thousand board foot, while logs from the central delta and lower Peel cuttings have averaged in the vicinity of twenty-two per thousand board foot.

### Training of Local People

In addition to training given to sawmill workers at Aklavik by a sawyer foreman recruited from elsewhere, three local men were placed on a vocational training program in 1965 at Swanson's Mill, a private lumbering firm operating in Wood Buffalo Park. While initial work reports were good, the men returned home before completing their training.

### Portable Sawmills

In a region where commercial stands of timber are scattered, there is some scope for considering the use of portable barge-mounted sawmills. This permits selective cutting and reduces the expenses involved in establishing lumber camps of a semi-permanent nature. It also reduces the necessity of moving logs over long distances under difficult conditions.

Where there are adequate resources and potentials for expanding production on the basis of existing markets, reasonable consideration can be given to the establishment of semi-permanent lumber camps.

Current information indicates that a semi-permanent lumber camp is being located on the Arctic Red River. On a limited cut basis, the cost of establishing the semi-permanent camp will have to be amortized over an extended program of seasonal cuttings.

An analysis of sales of lumber from the Mackenzie delta logging project, indicates that the major consumer of lumber products in the lower Mackenzie region has been the government in the form of various departments. The Department of Northern Affairs and National Resources, (Department of Indian Affairs and Northern Development), has provided the major market, while other agencies, such as Department of Transport, Fisheries Research Board, Indian Affairs Branch, etc. have purchases minor quantities of lumber. Sales to private individuals have been small, with minor amounts of rough lumber being purchased by oil companies and other private concerns. For example, sales to private agencies totalled only \$432.62 in 1961. Sales to private individuals and organizations in 1965, totalled approximately \$3,000.

### Aklavik Sawmilling Project

	<u>Reported Inventory</u>	<u>Reported Sales</u>
1963-64	437,693 f.b.m.	52,703 f.b.m.
1964-65	441,412 f.b.m.	241,333 f.b.m.

Mackenzie Delta Construction, a contracting firm in Inuvik, which also deals in building supplies, has imported lumber for sale from southern points at prices ranging from \$125 to \$155 a thousand, depending on specifications. Strategic advantages of location in respect to sales opportunities, have been enjoyed by Mackenzie Delta Construction



Limited sales potentials have been experienced by the Mackenzie delta logging project through the mill being located at Aklavik, rather than Inuvik, and an inability to meet demands for varying lumber specifications within limited time specifications.

A lack of lumber stocks of varying specifications at Inuvik in 1966, resulted in the loss of ample opportunities for sales to construction firms engaged in large-scale projects at Inuvik. There are restrictions in regard to the type, grade and moisture content in lumber for construction purposes. For example, lower Mackenzie spruce cannot be used in over-head beams on large structures.

### Costs of Lumber Production

The costs of lumber production have been high. While it is impossible to arrive at an accurate estimate of costs, these have been in excess of the f.o.b. prices, offered at the Aklavik sawmill site, of \$125.00 a thousand board foot. Excessive costs have been experienced in all phases of production.

In order to encourage utilization of local lumber by private organizations, lumber prices have been kept in line with the costs of imported lumber, despite high production costs.

Examples of:

### Lumber Prices - Aklavik - F.O.B. Aklavik

1,000 bd. ft. dressed lumber	\$125 per m.
1,000 bd. ft. 2 x 2 rough	\$105 per m.
1,000 bd. ft. shiplap	\$120 per m.
1,000 bd. ft. 2 x 6 dressed	\$120 per m.
1,000 bd. ft. 2 x 4 dressed	\$120 per m.

### Housing Survey

In 1966, a housing survey was conducted in all settlements in the lower Mackenzie region to assess the condition of native housing, (Indian, Eskimo and Metis), and to formulate a policy of raising housing standards in the region.

### Pre-Cut Housing

Experiments were carried out in 1966 to utilize local lumber in pre-cut housing. These experiments were carried out at Aklavik using lumber from the Aklavik sawmill.

The production of pre-cut housing of a standard one, two and three bedroom design, involves the use of approximately 10,000 bd. ft. of spruce lumber of varying specification. Within the region, a housing survey completed in 1966 indicated there were 115 units requiring replacement.



Distribution of Housing Need is as Follows:

Inuvik	16
Aklavik	38
Fort McPherson	33
Arctic Red River	4
Reindeer Station	14

The housing survey has been directed primarily at the need for improved housing in the settlements. Little consideration has been given to improving housing standards at trapping locations. A program to assist trappers in improving housing standards on the trapping grounds, might increase the incentive for greater productivity in trapping through more time being spent in the bush camps. This would offset in part, the increasing attractions of settlement living. A housing program, aimed at improving the housing of trappers, could be extended to a relocation program involving a more extended use of trapping areas. Many of the trappers are now using old cabins, which either require repairs or should be replaced.

Log Housing

The production of pre-cut housing will affect local employment in the settlements, (Fort McPherson, Aklavik), where the Indian Affairs Branch has previously carried out a housing program involving the use of local labour, in the erection of two-bedroom log houses. The results of the program were quite satisfactory and provided substantial amounts of local employment in logging and the erection of log houses.

Pre-cut housing involves an increased use of labour, particularly in the milling and pre-cutting stage. However, the erection of pre-cut housing reduces the amount of time involved in construction and will reduce settlement incomes.

There appears to be some merit in staging the erection of pre-cut housing in the various settlements over a two or three year period, rather than providing revenue to the settlement economies over a short-term period. Improvements in settlement facilities should be contemplated, in line with improvements in housing condition. The housing program is planned to commence in 1968-69.

Estimated Requirements to meet Local Housing Programs in Settlements

Inuvik	760,000 Fbm.
Aklavik	610,000 Fbm.
Fort McPherson	540,000 Fbm.
Arctic Red River	120,000 Fbm.
Tuktoyaktuk	200,000 Fbm.
	<hr/>
	2,230,000 Fbm.

When these requirements are compared with the final results of the forest inventories of 1965-66, the potential of the forest resources in the lower Mackenzie region can be readily evaluated for short and long-term production of winter, to meet regional and extra-regional requirements.

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\* Fort Good Hope and Colville Lake were not included in the general survey, but could conceivably be included in the pre-cut housing program.



## The Potentials for Local Furniture Production

In line with the need for industrial development in the region, experiments are being conducted in the production of furniture, using local woods. This is being carried out by the Department of Indian Affairs and Northern Development.

The potentials for furniture production in the region are severely handicapped by a lack of tree species such as oak, sugar maple, black walnut and other species, which are customarily used in the production of quality decorative furniture.

White spruce has been extensively used in the production of utility furniture, shelving and kitchen cabinets in southern Canada. The market potential for this type of commodity is limited in the region. It does not appear feasible to produce utility furniture for export, due to local labour costs involved in production, and the costs of transportation. However, the production of utility furniture could be co-ordinated with the housing program.

Attempts were made in 1959 to produce local furniture as part of a general rehabilitation program. This failed to evolve into a successful project due to a lack of qualified training personnel, suitable materials and a number of other factors.

Attempts are being made to overcome limited qualities of local lumber through the application of modern design methods in furniture production. Facilities at the local level are limited to those available at the boat shop at Inuvik. The use of experts in the design and commercial production of furniture is an absolute requirement for proper development of this type of industry.

The large scale production of furniture appears to be more feasible in southern localities of the Mackenzie district, where shipping methods are more varied, and there is a closer access to potential markets.

Much of the traditional skills in handling wood to produce articles for domestic use, appears to have been lost through disuse.

A small number of persons in the region have received training in the principles of boat building during the past five years. These men are now scattered through the settlements in the region and are not using the skills acquired during boat building courses. They form a potential nucleus of semi-skilled workers who could be employed in a furniture industry. There are also a number of men with some skills in general carpentry.

The development of a furniture industry hinges largely on the development of suitable designs, incorporating the use of local woods, for which sufficient demand can be developed beyond the region. These are major problems, but the success of Scandinavian furniture could well be duplicated here through intensive efforts on the part of experts in furniture design and production methods.

Recent trends in southern furniture production indicate a revival in the use of leather for luxury furniture. Experiments are being planned



to incorporate the use of reindeer leather in furniture production in the lower Mackenzie region.

### Pallets

The development of a local pallet industry was attempted by a projects office at Inuvik, but local pallets have to be shipped upriver to southern distribution centres.

### Markets for Sawdust and Slabs

The work of G.E. Bell, (1951 p. 6), in surveying sawmill operations in eastern Canada, indicated that 49.5 per cent of softwood logs is converted into slabs, edging trim and sawdust in normal sawmill operations. In large operations, considerable supplementary revenue can be obtained in sale of these products. This is not the case in the Mackenzie delta area where little or no potential market for these products exists.

Market potentials are non-existent for accumulations of sawdust resulting from milling operations. Limited attempts have been made to utilize this material for improving road conditions in Aklavik, but the sawdust has to be transported from Pokiak Point by barge in summer or tractor and sleigh in winter.

The market potential for slabs is non-existent. Aklavik residents failed to utilize slabs made available in 1964-65, on a free basis to people willing to haul them away. Residents in Aklavik show little interest in stockpiling or purchasing fuel wood requirements. Petty thefts of fuel wood discourage this.

A similar lack of potential for sales of sawdust and slabs exists in Inuvik, where the majority of people use fuel oil for cooking and heating requirements.

### The Western Arctic Markets for Lumber

At the present time, the potential markets for lumber of the specifications ordinarily produced in the Mackenzie delta area, appears to be small in the western Arctic, despite the existence of cheap forms of water transportation in coastal areas. Use of pre-cut housing, produced in the lower Mackenzie region, to provide Eskimo housing requirements in the zone between Spence Bay and the Mackenzie delta, should have primary consideration.

### Present Status of the Lumbering Project

In 1966 planning operations were carried out to reduce the existing lumber inventories at Pokiak Point. This involved transporting rough lumber by water from Pokiak Point to a small planning mill at Aklavik, and resulted in excessive handling. Planned lumber was provided for the production of seventeen pre-cut houses. Remaining stocks of lumber were shipped to Inuvik for use in sidewalk construction or other uses.

Present plans include relocation of the planning mill at Inuvik. In the autumn of 1966, a lumber camp was in the process of being established on the Arctic Red River. The sawmill at Aklavik had been dismantled and



moved to Arctic Red River logging site, twelve miles upstream from Arctic Red River. A contract for log production has been issued to white residents of Inuvik.

#### Establishment of a Lumber Yard at Inuvik

The establishment of a lumber yard at Inuvik would overcome many of the supply problems experienced in having the sawmill operation located at Aklavik. This would also permit the establishment of standard grading operations to meet the potential demands of government agencies. The necessity of proper drying of lumber and grading, rapidly increase the costs of producing lumber. Lumber cut in one season is not ready for use until the following season, using the simple process of air-drying in a northern climate.

Production must be gauged to potential consumption and barring the use of local lumber in a pre-cut housing program. Use of local lumber by private agencies located in Inuvik, will remain low in line with the limited potential for expansion in secondary industries in the region.

#### Minor Sources of Employment

Fire-fighting represents a minor source of employment in the region. The responsibility for controlling fires in the region lies with the Game Branch, and financial allotments for fire fighting amounted to \$14,300 in 1965.

Six small fires occurred in the region during 1966 and these were put under control through the use of fire fighting crews recruited from the settlements. The majority of the fires result from carelessness on the part of campers. Forest fire fighters were recruited from casual labour ranks in the settlements.

The total current costs in forest management amounted to approximately 10,000 in 1965-66. This included minor forest management expenditures in the Fort Good Hope, Colville Lake and Fort Norman areas.

In 1967-68 a forestry officer based at Inuvik, will take over forest management services in the lower Mackenzie region.



## SATELLITE COMMUNITIES AND POTENTIALS FOR MINK RANCHING

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### SATELLITE COMMUNITIES

The term satellite community, has been used in a number of ways. Essentially, it means a community which exists as an offshoot of a larger community, and is dependent in a number of ways, for its existence on the larger community.

Within the region, Arctic Red River, Fort McPherson, Aklavik and Tuktoyaktuk, function in some respects, as satellite communities of Inuvik. Due to the narrow resource base, Inuvik functions as an administrative, rather than a market center. Also, Inuvik is a vital link in intra-regional and extra-regional transportation and communication lines. Prior to the establishment of Inuvik, Aklavik had some of the functions of a regional center, but the smaller communities largely existed as separate entities, each with its own distinct hinterland.

### Small Satellite Communities

In recent years, the concept of small satellite communities has received considerable attention from administrators, welfare officials and persons concerned with resource development. Within historical times there is ample evidence of a much wider dispersal of the population. Older persons and those less able to adjust to the more complex social and economic structures of the settlements, fondly recall the "good life" they experienced while living on the land. There is considerable evidence which points to the contrary, when subsistence patterns were dramatically changed by the introduction of alien technologies, in the late nineteenth and early twentieth centuries.

The majority of settlement-based persons who wish to return to the land, are willing to do so under certain conditions. They wish to have ready access to many of the amenities available in the settlements.

The Anderson River trappers do not remain on the land throughout the year, despite a rather rich resource base, but return to the settlements in order to take advantage of casual labour opportunities and other sources of revenue in the summer. Tuktoyaktuk traders attempted to establish an outpost store in the Anderson River country, without success, in 1964.

As long as fur prices are good, there is evidence that the majority of the land-oriented residents in the region are willing to spend time on the land, during the trapping period. Once the trapping season is over, the majority prefer to withdraw to the settlements and either base their resource harvesting activities out of the settlements, obtain seasonal employment, or subsist on welfare and the generosity of employed relatives and friends.

The availability of aircraft chartering facilities permits an in-and outflow of trappers from favourable locations.

Milan, (1964), noted the general demographic trends, along the Arctic coast of Alaska, towards centralization of Eskimo groups. This is also apparent in the Inuvik region.

The trend towards less far-ranging activities on the part of native groups, may be attributed to a number of factors. Among these is the institution of educational and welfare facilities, and the establishment of permanent



housing for resident groups. The availability of casual labour with which to supplement income is concentrated in the settlements. All of these factors have worked toward a centralization of population. Writers have commented on the withdrawal of the natives from the land and the decreased utilization of resource areas.

### Herschel Island - Its Potential as a Satellite Community of Inuvik

In 1963, Currie carried out extensive investigations to determine the suitability of developing Herschel Island as a satellite community. Following an examination of the resource base, and interviews with Eskimos familiar with the area, he estimated that the Herschel Island area could support ten Eskimo families based there.

An initial assessment of the costs of establishing a permanent community was in the vicinity of \$430,000. The proposed community was planned to be self-supporting, through the establishment of an elaborate resource-harvesting complex, including canning plant, freezers and boats. A school and a nursing station were to be established to meet the needs of the ten families.

The open-water transportation period varies from six weeks to three months, depending on pack-ice conditions. Chartered aircraft flights between Inuvik and Herschel Island are expensive due to distance.

The main exportable commodity of the Herschel Island Yukon coast area is Arctic char. Intensive efforts on the part of a commercial fishing company in 1965, produced only 25,000 pounds, valued at \$4,000, landed on the beach. In 1966, a summer fishery produced only 550 pounds of char, despite large inputs of time and effort in setting nets at various coastal locations.

It appears that the seal potentials would meet the normal requirements of ten families of subsistence-oriented Eskimos, using other resources as well. The potential revenue from 500 seals, at average values of ten dollars a skin, would be only \$5,000. A sealing specialist, hired by the Department of Northern Affairs and National Resources in 1964, to test the sealing potentials by netting at Herschel Island, felt the area would support four families on a continuing basis.

Caribou are migratory, passing Herschel in the spring and late summer. Summer-hunting involves frequently long and unproductive walking tours in the tundra areas, south of Herschel. In terms of resources, caribou are a secondary resource and concerted efforts would be necessary to harvest annual requirements over short-term intervals.

Minor trapping activities have taken place on the Yukon coast - Herschel Island areas, in recent years. Two or three Eskimos work the Yukon coast intermittently from Aklavik. During the nineteen twenties and nineteen thirties, the cheapness of trade goods, imported from the United States, were the chief attractions for Eskimo and white trappers.

Local fuel resources consist of driftwood scattered along the coast. It is debatable whether collection systems, using local labour at prices



prevailing in the Inuvik region, would make this fuel source cheaper than fuel oil brought in from Norman Wells.

Charley Gordon, an Alaskan Eskimo employed as a school caretaker at Aklavik, customarily travels along the Yukon Alaskan coast by boat during his summer vacations. In 1965, he provided transportation to three Eskimo families from Aklavik to Herschel Island where they fished, hunted caribou and did some sealing. In September, they returned to Aklavik by canoe and scow, travelling close to the Yukon coast.

In 1966, Gordon got as far as Shingle Point before he experienced motor troubles and turned back to Aklavik.

Future developments in regional and export markets for the scattered resource of the Arctic coast, may dramatically change the status of Herschel Island. For the present, the resources do not appear to be adequate for the establishment of an economically viable community. While ready to undertake self-inspired ventures, involving considerable hardship and risk, resident Eskimos equate government with large-scale inputs of capital and equipment, at a standard comparable with established settlements.

Government resource-harvesting projects are also equated with cash returns and supplementary forms of support, in terms of equipment and food. Non-resident experts in resource harvesting, frequently become exasperated by the varying inputs of efforts expended in resource-harvesting, ranging from furious spurts of activity to lethargy on the part of Eskimos, despite the short-term availability of a resource and the necessity of concerted effort and marshalling of time.

### Colville Lake

Colville Lake in some respects may be regarded as a satellite community of Fort Good Hope. In contrast with the proposals for establishing an Eskimo community on Herschel Island, Colville Lake represents a rather successful, low-cost experiment in the rejuvenation of resource utilization by Hare Indians of the Fort Good Hope band. The community, with a population of sixty, successfully exploits a resource base, consisting primarily of fish, caribou and marten. Local forest resources have been used for cabins and fuel. A small trading post established in 1958, by a white trader with years of experience in the Fort Good Hope area, provides a supply and marketing center for trappers and is supplemented by trips to Fort Good Hope. A winter trail connects Colville Lake with Fort Good Hope.

Dynamic leadership is given in community affairs by a Roman Catholic priest. The tourism potential is being expanded through his efforts.

No school facilities are available in the community and school-age children attend school in Fort Good Hope.

Radio communication is maintained by the priest and is a link in communication with Inuvik and Fort Good Hope. Infrequent chartered aircraft trips are made by administrators and health authorities from Inuvik.



### Shingle Point

Between 1959 and 1963, a summer encampment of Eskimos from Aklavik and Inuvik at Shingle Point was sponsored by the Rehabilitation Centre of the Department of Northern Affairs and National Resources. Eskimo families lacking in transportation, equipment and grubstakes necessary to live off the land for the summer, were provided with those necessities. In 1962, the average government expenditures for each individual amounted to \$23.00.

The number of Eskimos involved in the project fluctuated from year to year, ranging from a low of 44 in 1960, to 105 in 1962.

The food harvested from year to year, varied according to weather conditions, availability of fish runs and proximity of caribou in their late summer movements. The most productive year occurred in 1961, when an estimated 260 caribou, 20 white whales and large amounts of herring and other fish were harvested by summer residents. The group was under the nominal direction of an Eskimo-white familiar with the site, its conditions and the people involved in the project.

The Shingle Point summer camps were in operation from the end of June to the beginning, or middle of September. No one remained at the location to hunt and trap in the autumn or winter.

By mid-September, the caribou herds have passed, whaling has long ceased and fish runs are declining.

Eskimo families from Aklavik and the delta area, still go to Shingle Point to hunt and fish during the summer, but do not receive any organized forms of support. Changes in government personnel have occurred since 1963, and persons keenly interested in the project are employed in other activities, or have transferred to other locations.

### The Tuktoyaktuk Area

The residents of Tuktoyaktuk have pointed out locations which they feel are favourable for the establishment of small Eskimo communities. The locations are the Anderson River, Crossley Lake area, which they feel is capable of supporting nine trappers; the Kugaluk area capable of supporting four or five trappers; and the Baillie Island, Cape Dalhousie-Stanton area which is a rich resource area.

With the exception of the Stanton area, Tuktoyaktuk trappers are presently exploiting the resources of these areas in winter. There are certain real attractions at Tuktoyaktuk, in the form of casual employment in the summer for the men and permanent employment for the women in the fur garment center. Also, there has been a large investment in school facilities, a nursing station, and a community hall, which could not be duplicated for small trapping groups except at a large expense. The limited fur returns are not encouraging for the establishment of stores, even in the form of camp trade.

Recently, the Tuktoyaktuk trappers have shown less interest in the Anderson River-Crossley Lake area, due to reduced marten catches. There is also some evidence that the Tuktoyaktuk people prefer to remain in the



settlement, rather than establishing summer camps to harvest whale and fish resources. Boats and high-powered outboard motors are used for daily hunts and fishing trips.

### Paulatuk

The independent resettlement of nine Eskimo family units from Cape Parry at Paulatuk in 1966, took place because of a decline in economic opportunity at Cape Parry. Paulatuk is more central to the resource base, which was utilized by Cape Parry Eskimos prior to 1966. While there appears to be a substantial resource base, (seal, fish, caribou and coal), the Eskimos readily acknowledge the fact they will be dependent on government support in various forms. Located 240 miles north-west of Inuvik, and accessible by boat in summer and charter aircraft throughout the year, Paulatuk appears to have little economic potential, other than limited returns from the subsistence economy. The potential of commercially exploiting char fisheries becomes reduced, through the expense of shipping fish by chartered aircraft, (24 - 25 cents a lb.).

In many respects, Paulatuk can be considered an experiment in the establishment of a satellite community. Accurate annual statements on resource-harvesting returns and total administrative costs, would be invaluable in terms of northern re-developments.

The establishment of permanent satellite communities should be approached with caution, in view of the trends towards greater centralization for the major portion of the population. The establishment of satellite communities is not an economically viable concept in many sub-Arctic and Arctic areas. In a number of cases, small satellite communities have functioned well through substantial inputs of economic aid, but the returns have been limited.

In the eastern Arctic, the subsistence camps are becoming less functional as opportunities expand in the settlements.

The number of older, experienced people, who lived full-time on the land, is rapidly declining, and the younger generations cannot be expected to move into a restricted environment and a lower standard of living.

However, there appears to be scope for a continuing assessment of potentials for seasonal occupation of specific areas by subsistence-oriented groups with government assistance. The cost of providing transportation to and from the settlements, equipment on loan and small amounts of store foods, appears to be small, in contrast to supporting less productive elements in the settlements throughout the year.

One of the major problems in development of the lower Mackenzie region is maintaining, and indeed expanding, utilization of the local resource base.

In this respect carefully planned continuing experiments in resource-harvesting by every feasible method, appears to be warranted.

### The Potentials For Mink Ranching

There are a number of reasons for contemplating the factors involved in



the introduction of mink ranching in the lower Mackenzie region. Low incomes are now being derived from trapping and fishing. A major part of the population is dependent on casual labour and welfare payments, to supplement low returns from the subsistence economy.

The technology of resource-harvesting beyond the subsistence stage, remains in a very minor stage of development. Continuing developments in commercial fishing will result in the production of large quantities of cull fish, for which no market exists at the present time. In line with commercial fishery developments, the growth of the Reindeer Project and the existence of large unutilized stocks of white whale the establishment of mink ranching would afford a means of integrating resource utilization at the regional level.

#### Ranch Mink Production in Canada

The following table is presented to show the status of mink ranching in Canada in recent years.

	<u>Number</u>	<u>Value</u>	<u>Average Value</u>
1956	1,002,188	\$15,413,231	\$15.38
1957	936,283	15,346,004	16.39
1958	982,783	15,968,133	16.25
1959	1,053,857	18,698,209	17.74
1960	1,203,853	16,888,286	14.03
1961	1,278,449	18,436,537	14.50
1962	1,295,672	19,602,300	15.13
1963	1,390,139	21,989,675	15.82
1964	1,418,368		14.92

Source: Dominion Bureau of Statistics

#### Distribution of Mink Ranches in Canada, 1962-63 (1)

	<u>No. of Ranches</u>	
	1962	1963
Ontario	496	488
Manitoba	200	188
Alberta	208	201
Saskatchewan	120	127
British Columbia	253	255
Other Canadian	223	226

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(1) Dominion Bureau of Statistics Report on Fur Farms, Catalogue 23,208, 1965, p. 9.



There are certain locational factors, which have played an important part in the over-all distribution of mink ranches in Canada. In Ontario, cheap agricultural by-products and coarse fish from the Great Lakes, have been important factors. There is also a large consumer market for mink pelts. Veterinarian services are widely distributed in connection with the emphasis on livestock production in Ontario.

In the prairie provinces, a mink ranching is largely confined to the parkland belt, where the economic base is agriculture, and fishing in the more northern areas. With a decline in the use of horses in agriculture in the prairie provinces during the nineteen forties, and nineteen fifties, and the subsequent decline in cheap sources of meat, some ranchers re-located to other provinces.

Formerly there were a number of mink ranchers in the Yukon Territory at Carcross and Tagish, but over-concentration of ranchers and over-exploitation of the fish resources, combined with low fur prices, resulted in a decline in the number of ranchers in the pre World War II period.

### Elsewhere

Declines in mink ranching have occurred in Alaska, due to rising operating costs and other locational factors. In 1939, 273 fur farming licences were issued in Alaska. Sixty-two fur farms were registered in 1947. By 1966, the number had dwindled to four ranches.

### Total Production of Major Pelt Types and Average Values of Ranch Mink Produced in Canada in 1963-1964, 1964-65 (1)

		<u>1963-64</u>		<u>1964-65</u>	
		<u>No.</u>	<u>Av. Value</u>	<u>No.</u>	<u>Av. Value</u>
Mink	Dark and half blood dark	264,668	- \$20.47	359,616	- \$14.62
	Light Blue	278,043	- \$14.70	254,242	- \$16.88
	Brown	464,260	- \$15.58	484,721	- \$14.05
	Dark Blue	77,280	- \$14.41	61,721	- \$16.17
	Grey	49,466	- \$12.27	38,584	- \$13.49
Other types					
	Beige	205,469	- \$14.20	170,830	- \$15.23
	White	60,835	- \$12.59	48,654	- \$14.09

The above table indicates the variations in types of mink pelts being produced by ranchers and price differentiations. The small rancher, with limited training and experience in mink breeding and genetics, is generally excluded from top-quality pelt prices, and the lucrative sale of breeding stock to other ranchers.



Number and Value of Canadian Exports of Raw Mink Furs 1962-63 - 1964-65 (2)

Mink Ranch Raised

1962-63		1963-64		1964-65	
No.	Value	No.	Value	No.	Value
885,318	\$14,648,481	1,037,757	\$17,880,533	949,595	\$15,379,174

Wild Mink

1962-63		1963-64		1964-65	
No.	Value	No.	Value	No.	Value
110,322	\$2,433,170	84,806	\$1,744,343	71,905	\$1,193,063

Number and Value of Imports of Raw Furs

1962-63		1963-64		1964-65	
No.	Value	No.	Value	No.	Value
604,101	\$7,040,498	620,097	\$7,844,651	590,495	\$8,702,652

World Mink Production

In terms of world mink production, it may be worthwhile to examine the Canadian position in respect to the production of ranch mink.

Estimated World Production of Mink - 1965-66

Major Producers of Ranch Mink

<u>Country</u>	<u>Standard</u>	<u>Pastel</u>	<u>All other Mutations</u>	<u>Over-all Total</u>
United States	2,450,000	2,950,000	2,900,000	8,300,000
Soviet Union	1,900,000	600,000	300,000	2,800,000
Denmark	1,200,000	690,000	510,000	2,400,000
Norway	1,000,000	442,000	408,000	1,850,000
Canada	437,500	525,000	787,500	1,750,000
Sweden	780,000	290,000	630,000	1,700,000
Finland	740,000	115,000	635,000	1,490,000

(1) Dominion Bureau of Statistics - Report on Fur Production

Catalogue No. 23-207, 1966, p. 5 and 15

The table indicates a trend towards lower average values for ranch produced mink.



Other countries produced less than 500,000 mink on an annual basis. The world total for 1965-66, is estimated at 21,964,000.

#### Estimated World Production of Wild Mink, 1965-66

	<u>Total Estimated Production</u>
United States	450,000
Canada	225,000
Soviet Union	75,000
All Others	10,000

On a world basis the United States is estimated to have used eleven million skins in 1964-65. West Germany is estimated to have used four million skins. The two countries consumed a major portion of the world's production of mink.

These figures give some indication of the current status of mink production and Canada's rank as a producer of ranch and wild mink.

#### Factors Advantageous to Mink Ranching in the Lower Mackenzie Region

There are a number of factors which appear to be advantageous to the establishment of mink ranching in the lower Mackenzie region. The following are some of the factors which should be taken into consideration.

##### 1. Climate

The lower Mackenzie region falls within the normal limits of mink habitat. Wild mink from the region have had a high reputation for fur quality. The production of wild mink has declined with an over-all decline in trapping activities.

##### 2. Potential Availability of Cheap Local Food Sources

This has proved to be the determining factor in the location of major mink ranching centers in North America. The rapid increase in mink ranching in Scandinavia may be attributed primarily to low cost feeds, climatic conditions and the income potentials for small operators.

Mink ranchers in the prairie provinces re-located in Newfoundland, due to the availability of low cost whale meat.

3. Local interest has been manifested in fur ranching in past years. The Semmler mink ranch, located on the Napoyak Channel, was successful during its period of operation from 1947 to 1955. The Baetz and Harrison ranches operated from 1939 to 1956, were small, poorly operated, uneconomic ventures. The Industrial Division of the Department of Northern Affairs and National Resources was approached in 1966, with proposals for the establishment of a commercial fishing, mink farming operation, by a group of Inuvik residents.

##### 4. Availability of a Research Station at Inuvik

While no veterinarian services exist in the region, there are trained wildlife biologists at the Inuvik Research Station. Also, the



existence of rapid communication, the telephone link between Inuvik and Edmonton, would permit consultation with veterinarians.

### Factors Against Mink Ranching

There are a number of factors which militate the successful establishment of mink ranching, as a major income source for local populations in the lower Mackenzie region. Among these are the following:

1. Lack of capital and equipment among potential mink producers.
2. Lack of training among interested parties.
3. Growing emphasis on quality production in mink ranching.
4. Cost factors involved in securing prepared ration supplements, which are used in addition to meat and fish in the diets of ranch mink.
5. Fur trade journals indicate there is a growing difficulty of small marginal producers in marketing small lots of mink pelts of varying quality and sizes.
6. Mink ranching is generally incompatible with subsistence activities, such as hunting and trapping, as mink require daily care.
7. Local labour costs range from \$1.75 to \$2.05 an hour.

### The Factors of Food Costs and the Availability of Local Foods

1. Fish - inconnu, tullibee, pike and suckers

Coarse fish were purchased for three cents a pound by the Holmes Creek Fishery in 1963. This is a favourable cost in comparison to costs of fish in the Great Lakes area, where fish costs ran between five and seven cents a pound in 1963. (1)

Authorities in mink production have stated that forty to seventy per cent of the rations can be fish. (2) The use of fish has been the basis of mink ranching in northern Saskatchewan. (3)

A market for cull fish at the local level would assist fishermen who have been employed by Menzies Fisheries.

2. Whale meat - white whales

White whales were sold at Tuktoyaktuk in 1966 at \$34-40 per whale for mature whales. This averages out to five cents a pound. It is assumed that bone and offal would also be used. Whale meat has been

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- (1) Little, A. Inc., An Evaluation of the Feasibility of Native Industry in north-western Alaska, 1963, p. 57.
  - (2) Increased use of fish results in poor pelt quality, poor breeding results.
  - (3) Buckley, H., Working Paper on Mink Ranching, Research Division, Centre for Community Studies, Saskatoon, 1962.



successfully used in Alaska and Newfoundland.

### 3. Reindeer Offal

Mr. R. Hill, (1966), has estimated that for every hundred reindeer slaughtered there is approximately 5,700 pounds of offal. By 1970-71, an estimated 208,500 pounds of offal will be produced from the annual slaughters. (1)

Carried out in respect to the Mackenzie Delta reindeer herd, an analysis of reindeer offal in a reduced state by the Department of Agriculture in 1965, indicated that it contained excellent components for use as mink food, (or dog food). Current quoted prices for offal are two cents a pound. Processing of offal is necessary to destroy parasites. (1)

### 4. Cereals

The use of cereals in mink ranches in southern Canada and the United States ranges from 20 to 25 per cent of the rations. On the basis of prices quoted in Edmonton, and the costs of transportation, the landed costs of cereal would be approximately twelve cents a pound. This price does not compare favourably with those for the Great Lakes area, where average prices ranged from five to seven cents a pound in 1963. However, it is assumed that lower costs of fish, whale meat and reindeer offal would offset the price of cereals.

### 5. Muskrat Carcasses

The current price of fifty to sixty cents a carcass, renders this commodity too expensive for use in feeding mink.

### Mink Rations

Some examples are available which show the components of mink rations generally in use today. (2)

#### Great Lakes Area

<u>Ingredient</u>	<u>Per Cent Ration</u>	<u>Current Av. Price</u>
Horse meat	5-10	14-15 cents a lb.
Tripe	25	6-7 " " "
Livers (in breeding season)	7-10	11-12 " " "
(in growing season)	5	
Cereals	25	5-7 " " "
Fish	25	5-7 " " "
Eggs, skim milk, cottage cheese, etc.	5	5-7 " " "

(1) The necessity of processing offal has prohibited its general use for dog food by trappers in the region.

(2) Arthur D. Little, Inc. (1963, p. 57)



Pacific Northwest

	<u>Per Cent Ration</u>	<u>Current Av. Price</u>
Fish Flocks	55	3.5-4 cents a lb.
Poultry Offal	20	3.5-4 " " "
Liver (in breeding season)	10	10-11 " " "
Cereals	20	5-7 " " "
Tripe	5	4-5 " " "

Costs of Mink Foods in Edmonton - 1966 (1)

	<u>Price per lb.</u>	<u>Cwt.</u>
Mink Cereals	.13½	13.50
Triple x Cereal	.081	8.10
Northwest Cereal	.069	6.90
Northwest Breeder	.072	7.20
Northwest Starter	.078	7.80
Slaughter horses	.05-.06	5.00-6.00 (live weight)

Cost of Refrigerated Mink Foods, Edmonton - 1966

Mink Mix	.1075	10.75
Fish (whole ground)	.06	6.10
Chick Block	.055	5.50

Hypothetical Example of Mink Rations

A hypothetical example of mink rations for the lower Mackenzie region is presented below:

<u>Ingredient</u>	<u>Per Cent Ration</u>	<u>Price Per Lb.</u>
Whale meat, reindeer offal	20	.05
Fish	60	.03
Cereals (imported)	20	.07 plus 5 cents a lb. for shipping

It is assumed that a proper ration could be worked out, either at the Ontario Agricultural College at Guelph or the Experimental Fur farm in Manitoba, on the basis of samples provided from the region. The percentage of basic components in rations is varied, according to seasonal changes, the breeding and lactating period and the growing and furring periods. Various formulae have been successfully developed by experimental station experts and individual breeders.

Projected Costs of Establishing a Small Scale Mink Ranch

It is worthwhile for the purposes of this report, to present some projected costs of establishing a small-scale mink ranch.

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(1) Prices quoted by Alberta Flour and Feed Ltd., Edmonton, Alberta  
Lactocase, an all purpose protein supplement, has been used at lower expense than horse meat and packing house by-products, in feeding mink kits by ranchers in Canada and United States.



It is presumed that local materials would be extensively used in establishing the plant. Major costs would be experienced in the provision of freezer facilities for the hold-over of rations, during the warm period. Information on permafrost cellars indicates the temperatures are too high, (average summer temperatures 28°F. during the warm periods), for the proper storage of mink foods. Authorities in mink ranching recommend a temperature of no less than 0°F.

#### Projected Costs of Establishing a Small Scale Mink Ranch

100 female breeders @50.00	5,000.00
25 males @75.00	1,875.00
489 pens @5.00 ea.	2,850.00
Sheds	1,000.00
Freezer facilities	8,000.00
Cold Storage Pits	500.00
Equipment and Supplies	2,000.00
	<hr/>
	\$21,225.00

In contrast to the projected costs outlined above, a survey in 1957 of eight small mink ranches in northern Saskatchewan, (68 to 127 breeders), resulted in an average equipment cost of only \$771.00 for boats, motors, nets. The ranches were securing daily food requirements during the summer through fishing. The feeding of fresh fish to mink continued until weather conditions permitted hold-over of fish supplies at proper temperatures.

#### Estimated Returns

<u>Sales</u>	<u>Revenue</u>
450 pelts	\$6,750.00
350 pelts	5,250.00
300 pelts	4,500.00

\*Revenue is based on average value of \$15.00 a pelt.

Approximate total feeding costs, based on the costs of feeding both local and imported foods, and the normal consumption rates for minks, range between \$2,275.00 and \$3,000.00. This leaves a small margin to cover normal operating costs, depreciation in equipment, as well as affording some income to the ranch operator.

The average food consumption rates for adult mink, runs between 127 and 150 pounds of food per mink, per annum. Mink born in the spring are pelted at eight months, the time normally required to finish pelts to a marketable quality.

Obviously the returns from operating a small ranch in the region would be insufficient to meet the normal income needs of an average family. Small operators elsewhere, combine their fur ranching operations with other endeavours, and are able to overcome the economics of scale.

A survey of mink ranching potentials for north-western Alaska, (Arthur D. Little Inc., 1963), pointed out that there had been a substantial



decline in fur farming in the state, due to higher costs, as compared to the American midwest. On the basis of extensive surveys in the United States and Canada, the investigators felt an establishment, involving 350 female mink, was the minimum economic-sized family ranch. This involved a total investment of \$61,300.00.

In contrast, a survey of mink ranching in Northern Saskatchewan, (H. Buckley, 1962), endorsed the establishment of Metis and Indians in mink ranching, with \$1,000 in loans for each rancher, and suggested the costs of establishment would be relatively small involving an investment of \$3,465 in breeding stock.

Clearly, two extremes in approach are presented in the reports. The Little report examines the potentials of maximum productivity by non-native peoples, while the Buckley report is based on the income needs of native people, with limited potentials for becoming highly efficient ranch operators.

Administrators and resource development experts with extensive experience in dealing with local populations in north-western Canada, are inclined to put experiments in mink ranching beyond the general capability of local populations. The small Saskatchewan ranches are contrasts to this assumption.

Included in the recommendations made in the Saskatchewan report, was the primary need for establishing an experimental station. It appears that the potentials for the establishment of an experimental ranch should be the primary consideration in the lower Mackenzie region, on the basis of various factors existent both in and outside the region.

Fur farming on a large scale is a full time endeavour, requiring a working knowledge of the principles of genetics, nutrition, animal husbandry, veterinary medicine and business management.

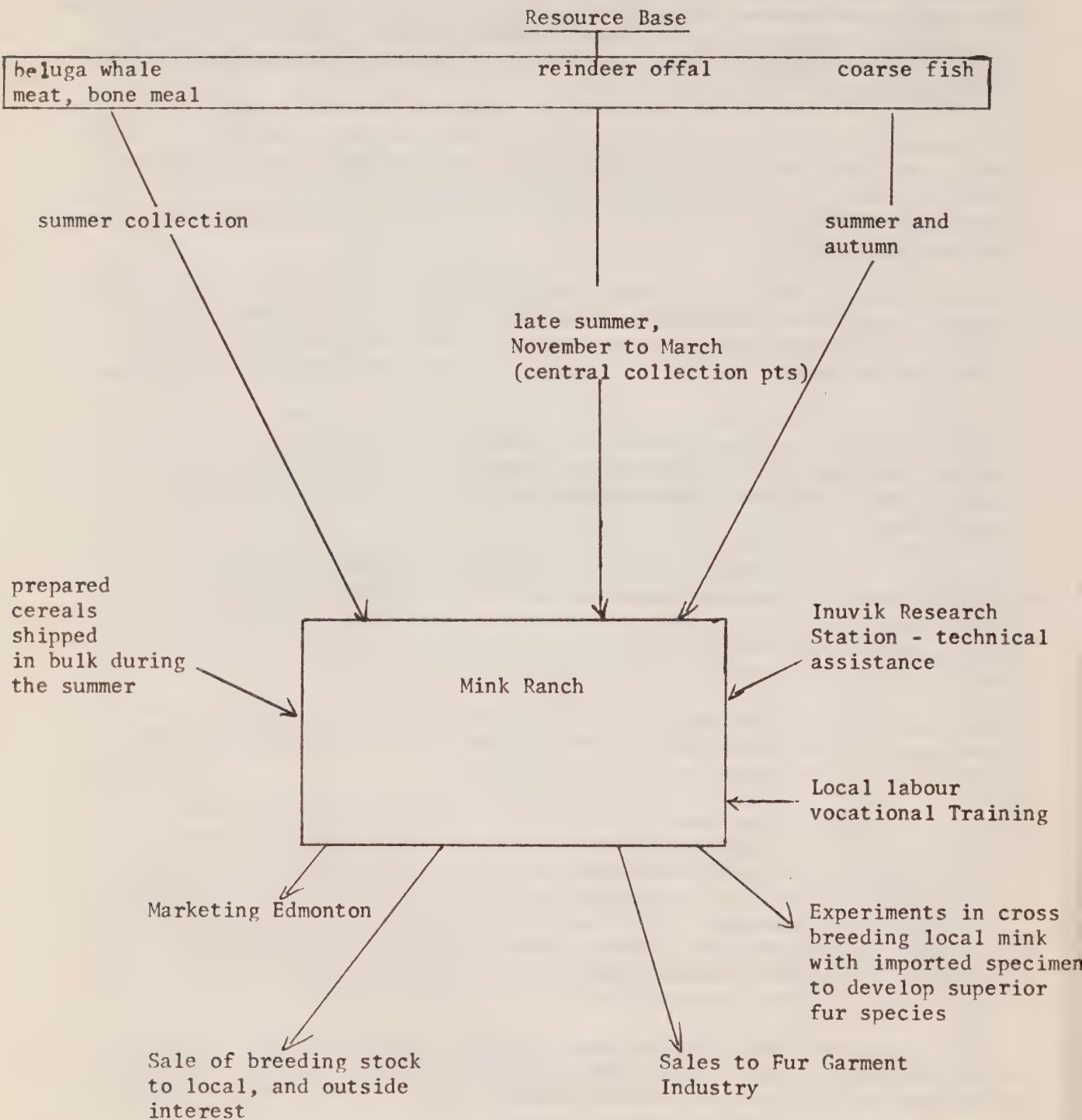
The development of an experimental station, using sound management principles, would permit an examination of all the factors involved in fur farming in the lower Mackenzie region. It would serve as a demonstration model for local persons interested in mink ranching, and ultimately could be used to provide breeding stock to interested parties. The cost of operating an efficient establishment would be defrayed through the sale of pelts. An experimental station would provide vocational training opportunities for local residents.

Also, an experimental station would test the feasibility of improving and integrating various types of resource-harvesting carried on in the region. Utilization of low-cost reindeer offal, at the local level, would be desirable in an economic sense.

The use of both animal husbandry experts and successful mink ranches is highly desirable in field studies in the region in order to assess the potentials for this type of industry. It may be possible to arouse the interest of a successful mink rancher in locating in the lower Mackenzie region, as an alternative to the establishment of an experimental station. Local resistance to this could be overcome by agreements between the rancher and the government, in respect to training local residents, and making stock available at reasonable prices.



Schematic Diagram Showing Factors in Mink Ranching Operation





The development of fur farming would provide opportunities for demonstrating better pelt handling practices to local trappers. Over the long-term it should be an inducement for permanent residents, including trappers, to begin small fur farms in the region.

Unlike other projects dealing in low value commodities, fur farming has a greater potential for better returns. Marketing of pelts can be carried out through established outlets in southern Canada, or to the fur garment centers within the region. Furriers in Edmonton and elsewhere have rated Mackenzie Delta mink high in fur quality, but in recent years they have been unable to obtain an adequate supply of pelts. It is to be hoped that through the establishment of good breeding practices, a highly salable breeding stock could be developed for export.

It should be anticipated that an eventual decline in the number of sled dogs will occur by replacement with mechanized transport, and through a probable decrease in the number of trappers. This will release fish, (and whale), stocks now being consumed in large quantities by sled dogs.

The establishment of an experimental mink farm would permit experimentation with other fur species which occur in the region, i.e., lynx, marten.

### Tourism

In recent years, there has been considerable speculation as to the potentials for tourism in the region. There are a number of favourable aspects for the development of the tourist industry.

There is a tremendous variety of physical landscapes, ranging from the mountains to the sprawling area of the delta and the Mackenzie plain. The tundra and the Arctic coast offer a complete contrast, with the forested areas of the southern part of the region.

The region has a rich historical background of exploration, the fur trade and whaling. The settlements are extremely varied in physical settings and general make-up. The predominantly Indian settlements of Fort McPherson and Arctic Red River, are different from the Eskimo settlement of Tuktoyaktuk. The pioneer settlement of Aklavik contrasts strongly with the thriving administrative center of Inuvik. Reindeer Station is the unique center of the Reindeer Industry.

### Means of Access

While the region offers a great deal in the way of potential tourist attractions, it suffers from geographical location. Presently the most practical method of access for the majority of tourists, with limited amounts of vacation time, is by air from Edmonton with a return flight fare of \$274.00. There are three scheduled flights per week between Edmonton and Inuvik.

Limited access by air is also available from Dawson City using the twice monthly established air schedule being operated by Great Northern Ltd., with an air fare of \$120.00. Increases in scheduling would permit tourists to follow a circular tourist route from Vancouver or Edmonton.



Trips can be made down the Mackenzie River by water, providing one has sufficient time and some form of water transportation. Hay River or Fort Providence are the customary jumping-off points and are connected to Edmonton by road. Tourists using this means of access usually attempt to dispose of their boats at Inuvik, before returning south by air. Six parties made this trip in 1966. Plans by a private company in Edmonton for the construction of a cruise vessel with an 80 passenger capacity for use on the Mackenzie River system, by 1966, unfortunately have not materialized. The proposed routing extended along the Mackenzie River to Inuvik, and would have resulted in an increase in the number of tourists entering the region.

The completion of a road system, linking Dawson City to Inuvik, and following the Mackenzie Valley south to Hay River, would undoubtedly increase the tourist potential, but this would be extremely expensive.

#### Airline Traffic 1964-65

As can be seen from the statistics given below, Edmonton was the major point of entry for airlines passengers travelling into the lower Mackenzie region. Statistics are not available to indicate the number of passengers travelling as tourists. A tourist survey could easily be conducted through the distribution of stamped post cards to mainline passengers travelling to Inuvik. This would require an agreement with Pacific Western Airlines. Arctic Circle citations are presently handed to passengers by airline hostesses, between Edmonton and Inuvik.

#### Present Status of the Tourist Industry

There is a minor inflow of tourists into the region during the summer. An estimated 200 tourists visited the region in 1966, from a wide variety of points of origin in the United States and Canada.

The summer influx of government personnel, scientific parties and transient workers may be considered to be a form of tourism, since local handicrafts are purchased and other facilities are used, such as hotel accommodation.

#### Accommodation

Accommodation facilities are relatively limited in the region. The Inuvik hotel with twenty-five rooms, is frequently overcrowded with visiting government personnel and transient workers, during the peak summer season. The small lodge at Tuktoyaktuk offers limited facilities for six persons. A five-room hotel at Aklavik is nearing completion. Reindeer Station, Fort McPherson and Arctic Red River are totally lacking in tourist accommodation.

#### Settlement Attractions

There are a variety of attractions pertinent to each settlement. Some of these, such as the museum at Fort McPherson and the Anglican Church at Aklavik, have historical backgrounds. Handicraft shops at Inuvik and Tuktoyaktuk, the fur garment centers, the Aklavik tannery and the Igloo Church at Inuvik are all of major tourist interest.



INUUVIK, N.W.T.

PLACE TO OR FROM	1964			1965		
	PASSENGERS OUTBOUND	PASSENGERS INBOUND	TOTAL	PASSENGERS OUTBOUND	PASSENGERS INBOUND	TOTAL
LIEU D'ENTREE OU DE SORTIE	PASSAGERS SORTANTS	PASSAGERS ENTRANTS	TOTAL	PASSAGERS SORTANTS	PASSAGERS ENTRANTS	TOTAL
Aklavik, N.W.T.	580	660	1,240	590	680	1,270
Arctic Red River, N.W.T.	60	20	80	20	45	65
Calgary, Alta.	15	10	25	40	10	50
Cambridge Bay, N.W.T.				10	10	20
Castlegar, B.C.				10	10	20
Dawson Creek, B.C.	25	10	35	20	25	45
Edmonton, Alta.	1,310	1,205	2,515	1,870	1,985	3,855
Fort Good Hope, N.W.T.	5		5	10	15	25
Fort McPherson, N.W.T.	220	220	440	420	515	935
Fort Nelson, B.C.		5	5			
Fort Norman, N.W.T.				20		20
Fort Resolution, N.W.T.				10	5	15
Fort St. John, B.C.	5		5			
Fort Simpson, N.W.T.	5		5	5	20	25
Fort Smith, N.W.T.	130	150	280	125	160	285
Fredericton, N.B.	5		5			
Hay River, N.W.T.	25	40	65	15	50	65
Montreal, Que.					5	5
Norman Wells, N.W.T.	180	215	395	215	245	460
Ottawa, Ont.	40	50	90	15	35	50
Peace River, Alta.	5		5	10		10
Prince George, B.C.	5		5			
Regina, Sask.		10	10			
Saskatoon, Sask.					10	10
Toronto/Hamilton, Ont.	20	10	30	5	10	15
Tuktoyaktuk, N.W.T.	250	230	480	410	490	900
Uranium City, Sask.		5	5			
Val-D'or, Que.					10	10
Vancouver, B.C.		10	10		20	20
Victoria, B.C.				10	10	20
Whitehorse, Y.T.				5		5
Windsor, Ont.				5		5
Winnipeg, Man.	15	15	30	15	10	25
Yellowknife, N.W.T.	115	90	205	185	235	420
	3,015*	2,955*	5,970*	4,040*	4,610*	8,650*

Source - D.O.T.



The wide availability of handicrafts in the region has already been dealt with in a previous chapter. Stores throughout the region offer ample ranges of merchandise for catering to tourists.

Renewed interest is being developed in the Eskimo drum dance.

Slavey drum dances are still practised at Arctic Red River and Aklavik.

### Sources of Local Information

With the exception of Inuvik, there are few organized sources of information. At Inuvik, information can be obtained from various government agencies, the hotel and stores and a weekly newspaper. The Chamber of Commerce at Inuvik could be encouraged to give support to the development of tourism. The production of local brochures and booklets would aid in tourist development. This could be expanded to the distribution of information brochures to aircraft passengers.

### Incentives for Sportsmen

At the present time, there is little in the way of incentive for big-game hunting enthusiasts. The region is closed to non-resident big-game hunting. The caribou herds, which migrate through the Richardson Mountains and Peel Plateau area, are accessible by aircraft or boat from mid-August to the end of September. While hunting is open to non-residents in the Yukon, there is a necessity of having registered guides.

Reference has already been made to annual game takes in the region.

The Dall sheep population is small and offers little potential for sport hunting in the region. The potentials for good moose hunting exist primarily in the southern, less accessible parts of the region.

While there are indications of recent increases in the barren-ground grizzly bear population, potentials for hunting this species are located at some distance from the settlements.

The potentials for waterfowl hunting are good in the northern part of the region and non-resident hunting is permitted by law. The season is open in September.

Beluga and seal hunting from Tuktoyaktuk offer some attractions for sportsmen. In 1966, American sports magazine writers were quite enthusiastic about this type of hunting, following a trip to Tuktoyaktuk. There are good char fishing and sealing potentials at Paulatuk.

Providing agreement could be reached with Yukon game authorities, there appears to be some potential for the development of outfitting at Fort McPherson, for hunting trips in August and September into the Upper Peel or Rat River areas for moose, caribou, black bear and grizzly. This, of course, requires accurate game surveys and the setting of quotas.

A preliminary assessment by Tanner, (1964, p. 45), of the cost of becoming an outfitter in the Yukon, indicated approximately \$15,000. Outfitting



in the lower Mackenzie region would be restricted primarily to the use of water transportation or aircraft, in contrast to the Yukon, where pack horses are extensively used in reaching hinterland areas.

The people of Fort McPherson have a number of skills necessary in the development of outfitting, namely expert knowledge of local water routes and the seasonal distribution of game. A number of residents have experience in guiding, while some women in the community have had experience in institutional cooking and household maintenance, through working in the hostel.

The development of outfitting by the people at Fort McPherson would require extensive assistance in the matter of financing and organizational procedures. Similar requirements exist at Tuktoyaktuk.

### Fishing

The potentials for sports fishing have already been examined in the chapter on fishing.

The development of fly-in camps from Inuvik could also be considered in the over-all tourist development.

A resident of Inuvik is developing a lodge at Sitidgi Lake, with a capacity for twenty sportsmen interested in fishing in the Sitidgi and Eskimo Lake area. This is a fly-in camp forty miles north-west from Inuvik.

### Transportation Facilities for Tourists within the Region

Charter air services at Inuvik offer the easiest and quickest means of transportation in the region. Charter rates of \$150 per day for a Cessna 180, (with a payload limited to three passengers), permit tourists to visit outlying settlements following an established circuit. During the summer months, the number of flights by scheduled aircraft to outlying settlements, permit overnight stop-overs, with the exception of Arctic Red River and Reindeer Station.

### Water Transportation and Guides

Water transportation by canoe or river scow is available on a daily basis, at rates ranging from \$20 to \$40 per day, from all of the settlements, but little attempt has been made at the local level to organize water transportation for visitors, with the exception of Tuktoyaktuk. This, of course, results from a limited demand for water transportation. Arrangements have to be completed well in advance through administrators or H.B.Co. managers.

During the 1966 season at Tuktoyaktuk, a local Eskimo offered charter boat trips for beluga hunting in Kugmallit Bay. Each person was charged \$15 for the trip. During the course of the season fifty persons made use of this opportunity to see beluga hunting.

Indians and Metis have had experience in guiding at Great Bear Lake during the past two years. The income potential from guiding is limited by short seasons. The income potentials at Great Bear Lake for individual guides,



do not exceed \$570 per season. This may be contrasted with opportunities to make twice this amount in casual labour. This does not, of course, include tips or gifts. In northern Saskatchewan, where the season is slightly longer, top incomes of \$800 per guide were revealed as results of surveys.

#### Persons involved in guiding at Great Bear Lake 1965-66

	1965 <u>No. of Men</u>	1966 <u>No. of Men</u>
Arctic Red River	5	6
Inuvik	4	6
Fort McPherson	3	3
Aklavik	—	<u>2</u>
	12	17

Guides recruited for fishing camps receive \$8.00 a day, plus room and board. In addition, they receive a bonus of \$100 if they complete the season. The guides pay their transportation to and from Norman Wells, where they receive free transportation into the fish camps. The season begins on the first of July and ends in August.

With minor exceptions, Eskimos have not been involved in guiding for tourists, although they have worked for various scientific and government parties.

In 1966, a big-game guiding course was conducted by the Department of Indian Affairs and Northern Development at Carcajou Lake, in the Mackenzie Mountains. While no residents of the region attended this course, it may be expected that they be included in future courses of this nature.

Of course, the major income potential in the tourist industry lies in the provision of accommodation, food and local transportation. This is an important source of revenue in an area not accessible by cheaper forms of transportation.

#### Abandoned Radar Sites

Abandoned radar sites in the Arctic coastal areas offer some potentials for development as locations for tourism. However, a lack of opportunities for non-resident sport hunting and the cost of rehabilitating and maintaining the buildings, are factors which must be taken into consideration.

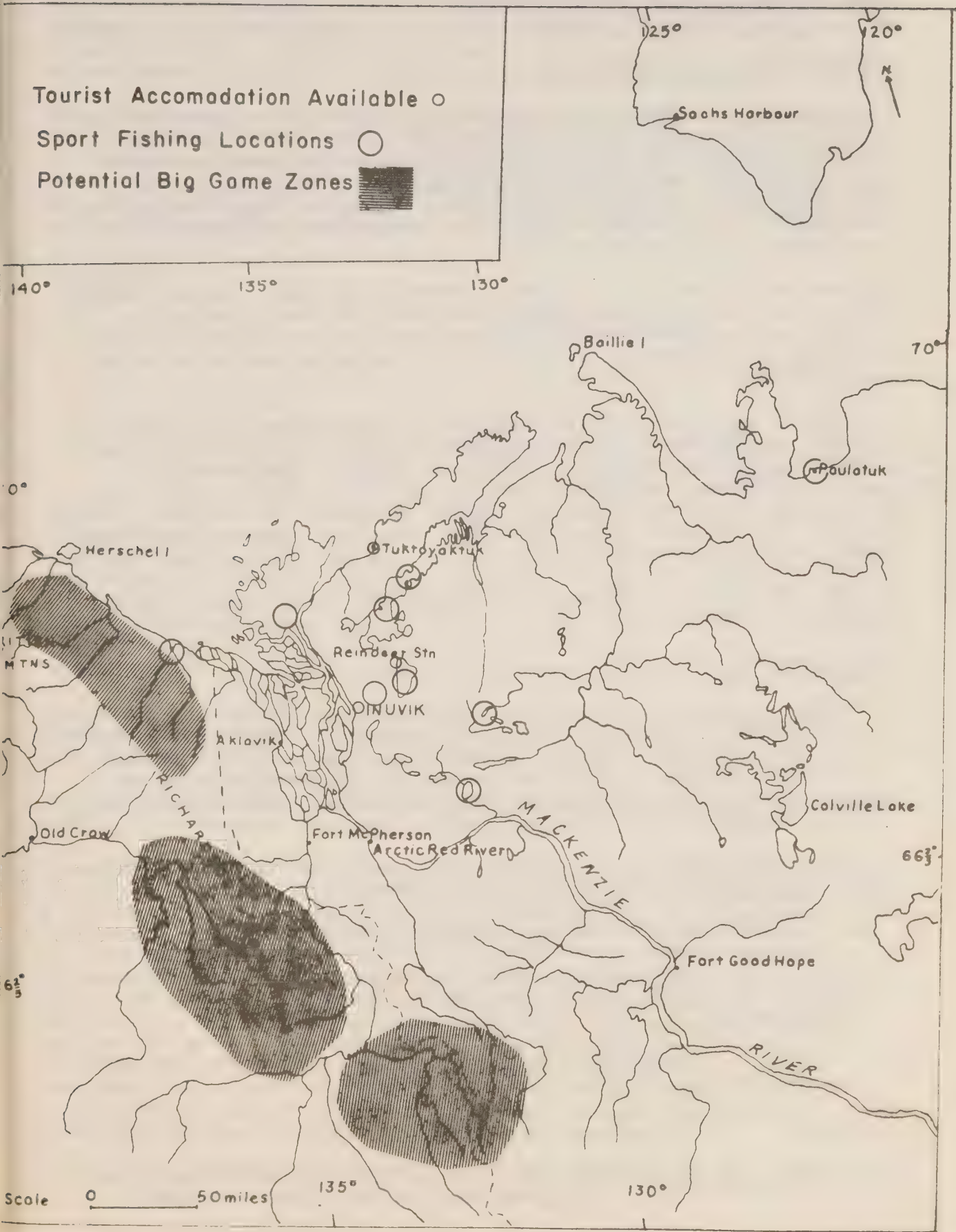
#### Intra-Regional Tourism

Forms of intra-regional tourism exist within the region. This consists primarily of charters by interested groups, from Inuvik to outlying settlements. Tuktoyaktuk receives the greatest number of local visitors, but trips are also made to other settlements. The major attraction at Tuktoyaktuk lies in being able to purchase handicrafts, or see the nearby pingoes and the Arctic coast.

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\*The Hudson's Bay Company at Inuvik provides canoes on a rental basis.







Trips are made to Herschel Island or the Travaillant Lake area, by Inuvik groups interested in artifacts or fishing, or merely in getting away from the "artificial" milieu of the town.

### Potentials for Tourist Development

There appears to be some potential for the development of a first-class tourist lodge, centrally located at Inuvik, and incorporating a package deal involving food, accommodation and transportation to specific areas within the region. Due to the relatively limited tourist season, added income could be derived from the operation of a cocktail lounge during the winter period. This operation would offer some competition for the hotel, already well-established in Inuvik.

Opportunities for skiing, the annual Reindeer Day at Inuvik, and drum dances, could be incorporated into a festival week during the Easter season, to attract tourists from Edmonton. The excursion trip has already been used to bring groups of Edmonton teachers to Inuvik on an exchange sight-seeing tour.

The costs of establishing first-class tourist accommodations in the north are high. Sample costs for the development of a twenty person fishing lodge on Great Bear Lake in 1964-65, indicate over \$130,000. The season is limited to nine weeks during the summer period. In the Inuvik region, the season could be extended somewhat to include the season for waterfowl hunting. Lack of capital is an inhibiting factor among potential investors in the lower Mackenzie region.

Generous land-leasing arrangements are available in terms of tourist lodge development in the N.W.T.

### Recommendation:

1. That the Industrial Division undertake to develop a working plan for the construction of a twenty-person capacity lodge, in or near the community of Inuvik. For the purposes of presentation, this plan should include a detailed analysis of estimated construction and operating costs and the potentials for package deals incorporating food, accommodation and local transportation.

A detailed analysis of the potentials for sports fishing and other forms of recreation, should be included in the report.

2. The completed report should be presented to interested persons at Inuvik and other settlements in the region. The report should develop methods of financing such a project, either by individuals or groups, and show the potential returns and time required to amortize the costs of such a development.
3. If a lack of interest is shown in the region, then the report should be made available to potential investors elsewhere.

### Agriculture

While climatic and soil factors have placed limits on the development of agriculture in the region, there have been a number of experiments on a



small basis. Traditionally, with the exception of berries, (salmon berries, blueberries, cranberries), and to a lesser extent roots and bark, the indigenour groups made little use of local vegetation as food and were primarily hunters. Agriculture on a small scale, was initially introduced to the region by Hudson's Bay Company personnel and missionaries.

While the growing season is relatively short, compensation is derived from the longer hours of daylight and certain varieties of imported plant species can readily be grown, despite the reduced growing season. The shortness of the growing period can be overcome by starting plants in small greenhouses. Boughner, (1956), gave an average of 73 frost-free days for Fort McPherson, and 66 frost-free days for Aklavik.

### Frost Data

#### Extremes in Record

	<u>Longest</u>				<u>Shortest</u>		
	Av. Frost Free days	Last Spring Frost	First Frost Fall	No. of days	Last Frost Spring	First Frost Fall	No. of days
Aklavik	66	June 16	Sept. 26	102	July 11	Aug. 12	32
Fort McPherson	73	May 29	Sept. 10	104	July 9	July 18	9
Fort Good Hope	53	May 25	Sept. 1	99	July 14	July 22	8
Fort Norman	46	June 17	Sept. 14	89	July 14	July 23	9

\*Taken from Boughner et al 1956.

\*\*Frost records at Inuvik, between 1962-66, closely parallel those for Aklavik.

Root crops, such as potatoes and turnips, can mature at both Aklavik and Fort McPherson. There is, of course, a danger of intermittent frosts. However, close proximity to rivers affords some protection from frost damage.

Despite semi-arid conditions of soil moisture, summer precipitation is usually sufficient to eliminate the need for irrigation of crops.

The alluvial soils of the region in the vicinity of Fort McPherson, Arctic Red, Aklavik and Inuvik are relatively fertile. Continued cultivation brings about a lowering of the permafrost table, but also results in deterioration of the humus, with a resulting need for fertilizer.

During the forties, a small dairy farm was operated at Aklavik by a resident doctor. The herd of cattle numbered ten during maximum operation, and was maintained on local grasses and cultivated fodder, (green oats and timothy and imported feed). The stabling period was long, beginning in October and ending in late May, with the disappearance of snow. This experiment terminated with the departure of the doctor. Goats have also been kept at Aklavik. The availability of imported fresh powdered and tinned milk, generally precludes resumption of this type of experiment.

Experiments with poultry keeping generally have proved uneconomical, due to the expenditures on imported feed and the cost of heat.



The Roman Catholic mission at Aklavik operated a large vegetable garden in connection with its hospital and residential school, and annually produced 75 bags of potatoes, as well as cabbages.

This has ceased with transference of major mission activities to Inuvik.

F.V. Hutton, (1944), listed fifteen acres under cultivation at Aklavik, while Robinson, (1944), listed one acre as the total acreage for McPherson and two acres for Arctic Red River.

Production of food in the region consisted primarily of potatoes. The Department of Agriculture in 1943, gave an annual total of five thousand pounds of potatoes, (Aklavik 2,000, Fort McPherson 1,000, Arctic Red River 2,000). Thirty-seven thousand pounds of potatoes were being annually imported, in addition to other foodstuffs.

The Indian Affairs Branch in the past, actively encouraged gardening by resident Indians at Fort McPherson and Arctic Red River. This was done through the provision of seeds, tools and the use of a tractor for garden cultivation. Lack of suitable ground and a lack of interest on the part of local residents in agriculture, have terminated these experiments. The indigenous groups have become partial to vegetables but are usually, too "busy", during the short summer period, to cultivate gardens.

#### Present Status of Agricultural Activities

Since 1962, a sub-station of the Fort Simpson experimental farm has been operated at Inuvik and the Roman Catholic Mission maintains an excellent small garden plot. The Department of Agriculture plot consists of an acre of land on sloping land. The soil is fine-grained with varying amounts of peat and stones. Plants are started in a small greenhouse with an oil heater and later transferred to open plots. Data is collected on soil temperatures, air temperatures and precipitation and frost data.

In 1966, potatoes, cabbages, various other types of vegetables and flowers were produced on the plot. Harvesting began in mid-August and the produce was distributed to residents of Inuvik. Minor experimentation with barley and oats was also carried on. A few potatoes and turnips were planted in loose delta soils by the river, with indeterminate results.

A white resident of Inuvik, with limited experience in agriculture, hopes to plant a ton of seed potatoes on silt flats in the Middle Mackenzie River area, in 1967. Cost of importing a ton of seed potatoes from Alberta amounted to \$60.00. This is based on the willingness of H.B.C. store managers at settlements in the region, to purchase a total of 24 tons of locally produced potatoes, in 100 lb. bags at \$10.00 a bag.

Other Inuvik residents have shown little interest in using an acre of garden ground beside the experimental station. Lack of use may be attributed to pilfering by children on unguarded garden plots.

The agricultural expert, who operated the experimental station during 1966, felt there was a substantial market for greenhouse produce on a year-round basis, in the lower Mackenzie region. It appears feasible that the utilidor system at Inuvik could be tapped for heat and water requirements. Light



requirements are also available. Some consideration could be given to the construction of a commercial greenhouse at Inuvik by the government, and providing it at a low rental to an interested party.

Elsewhere in the region, a small garden plot is maintained by the priest at Aklavik with good results. Non-resident whites experiment with small plots from time to time.

At Fort McPherson, there were five small garden plots maintained by non-permanent whites, the largest being approximately 20 by 60 feet.

The chief at Arctic Red River hopes to produce vegetables for resale, following the acquisition of a garden tractor in 1967. The local school caretaker had a small garden plot of approximately 15 by 20 feet.

### Commercial Dog Foods

Large amounts of commercial dog foods are used in the lower Mackenzie region. This is due to a number of factors. The major one appears to be the general inability of Indians and Eskimos to put up an adequate stock of fish to last them through the winter season. Putting up an adequate store of fish is an arduous and time-consuming chore. There are conflicting interests of hunting and the beginning of the trapping season, the necessity of repairing trapping cabins, and equipment. Careful timing is necessary to make optimal use of fish runs.

The feeding of commercial dog foods commences after the stock of fish has run out. The general practise is to feed one pound of commercial dog food, if it is available, to each working dog per working day. A pound of tallow is used in addition in feeding the team. In the northern part of the region stocks of whale fat are used for this purpose, if they are available. Use of commercial dog foods fed on a regular basis to dog teams, results in an average cost per day of \$1.50. Use of fish at current local values amounts to \$1.20 per day.

Prior to the discovery of hyatid in reindeer in the nineteen fifties, local residents from the region used to attend the reindeer slaughters for the purpose of collecting offal to use as dog food. It would be a major advantage to trappers in the region if low cost methods could be found in making available low-cost whale products and reindeer offal. This requires some organization to bring about increased utilization of whale stocks, through larger catches, and organized methods of distributing this material for use as dog food.

### Dog Food Sales - 1965

	Tallow	Price/lb.	Dog food	Price/lb.
Tuktoyaktuk	1,000 lbs.	25 cents	14,000	25 cents a lb.
Aklavik	3,000 lbs.	25 cents	25,000	25 cents a lb. (a)
Fort McPherson	7,690 lbs.	26 cents	26,410	18 cents a lb.
Inuvik	4,000 lbs.	25 cents	13,750	25 cents a lb. (b)
Arctic Red	5,000 lbs.	25 cents	25,000	25 cents a lb.



- (a) Sales by the major distributor
- (b) Estimated sales of two distributors selling these products.

At Tuktoyaktuk, sales of beef tallow were reported to have declined from 1,000 lbs. in 1965, to 600 lbs. in 1966. The most likely factor appears to be the increased whale take by Tuktoyaktuk hunters.

Tests carried out by the Department of Agriculture have indicated that reindeer offal offers a highly satisfactory substitute for the commercial dog foods, (miracle and corn meal), available in the region.

Analysis of Reduced Reindeer Offal \*(1)

<u>Component</u>	<u>Reduced Reindeer Offal</u>	<u>Commercial Dog Food</u> (marketed in cans & pet food)
Protein	45.4%	28.8%
Fat	23.6%	4.7%
Ash	10.2%	10.8%
Calcium	1.7%	2.6%
Calories (kg.)	6637	4551

The major problem in utilizing reindeer offal is in processing to reduce the danger of hyatid infection among sled dogs. While some trappers could be expected to cook the offal sufficiently, others would not do so.

\*

(1) Canada, Department of Agriculture, Central Experimental Farm, 1965.



REINDEERThe Reindeer Project

Reference was made to the Reindeer Project in the historical section. The following is a brief resume of the current status of the project.

In the period between 1935 and 1961, the Reindeer Project was managed as a government project with government personnel in the supervisory position at Reindeer Station. Herders and their families who followed the migratory reindeer herd, lived a semi-nomadic life. A large number of visiting scientists and researchers were involved in studying the project for short intervals. Marketing of reindeer meat was carried out by transporting carcasses by boat and then by aircraft to various settlements in the lower Mackenzie region.

Since 1961, the Reindeer Project has changed radically in operation through the introduction of management contracts. The contemporary situation is of major interest in this report.

Reindeer Reserve

The Reindeer Reserve is a 17,900 square-mile range located on the east side of the Mackenzie Delta. It includes Richards Island and smaller islands in the north-east corner of the Mackenzie Delta. There are considerable vegetational differences in the reserve as shown on the map, ranging from tundra into open woodland. An estimated thirty to fifty per cent of the reserve is covered by water.

At the present time range utilization covers the portion of the reserve west of 132 degrees. An extensive burnt over area, as well as the Eskimo Lakes, effectively divide the reserve into a western and eastern half. In recent years, the eastern half has been subject to utilization by increasing numbers of barren-ground caribou during the winter months.

Forest Fires on the Reindeer Range

Forest fires east of the Eskimo Lakes have affected the vegetation cover over extensive areas. In 1954, large areas of winter range were destroyed by fire. In June 1955, an estimated 820 square miles was seventy to eighty per cent burned and thus rendered useless for grazing. In 1962, another fire covering approximately twenty square miles occurred along the Miner River. The majority of fires appear to have been from natural causes, with the exception of a small fire in 1963 in the Eskimo Lakes Region, which resulted from the careless burning of waste material. Extensive burning in scrub and open woodland seriously limits the grazing potential for reindeer or caribou, but may improve the habitat conditions for moose over the short-term, through the growth of poplar and willow. The burned areas are not now being utilized by the reindeer herd. However, continued burning of range will affect expansion of the reindeer herd.

Predation

Predation by wolves, grizzly bears and lynx on winter range does not appear to have been too serious during the history of the Reindeer Project, due largely to close herding practices. Looser herding practices instituted



in 1963, may call for a closer control of predators.

### Herd Losses

Despite a lack of serious predation, the herd losses have been high, as shown in the table on page 458. In a number of years they have exceeded the ten per cent annual losses, which are expected in the industry. Short-term analysis of straying would seem to indicate losses are not high in this respect. Factors of malnutrition, poor handling techniques and possibly human predation, have been serious causes of herd losses in the past. In the spring of 1964, five persons were committed at Tuktoyaktuk for the illegal killing of reindeer.

### The Reproductive Cycle in Reindeer

Reindeer females normally breed at 16 to 18 months of age although female fawns may breed as early as five to six months under ideal fodder and range conditions. It is estimated that one bull can adequately serve ten females.

The rutting period in Mackenzie reindeer occurs between approximately August 20 and October 10 with maximum activity between September 1 and September 7.

The gestation period is 217 days, (Flerov 1952), and during late April and May the Mackenzie reindeer fawn. The fawn, which weighs around ten pounds at birth are physically capable of following their mother within a few hours after birth. The nursing stage lasts between six to seven months and continues through the period of the rut, when the females are again ready for service.

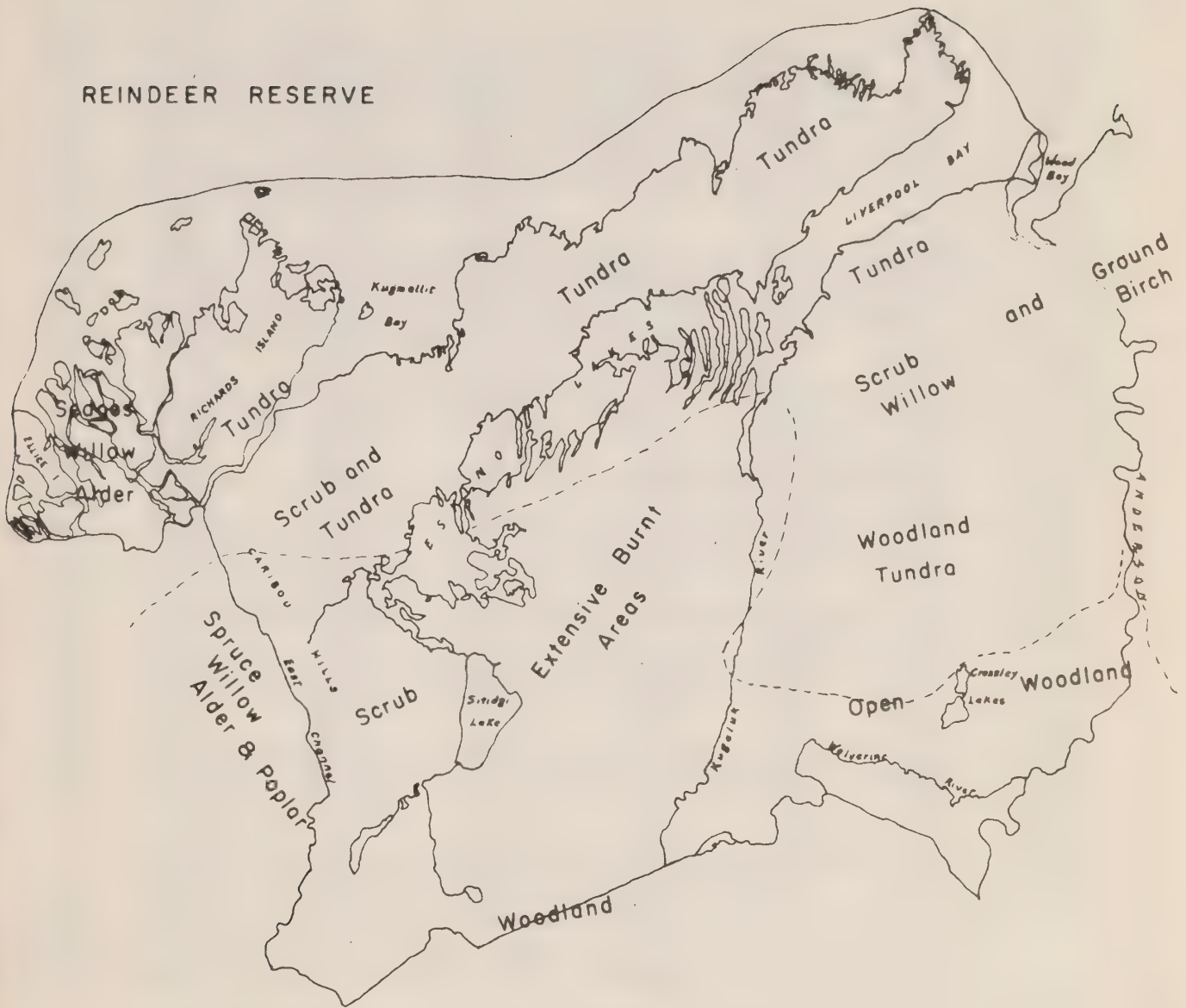
The life span of female reindeer has been estimated at 25 years and fertility continues to age 20, (Flerov 1952). It has been estimated that females are best kept to six years, (while males can be held to seven or eight years), to obtain maximum productivity, both in production of calves and slaughter for meat. Older animals become less productive, both in terms of calf and meat production. A rapid growth in size and weight occurs during the first two years. This tapers off in the following years. (1)

Ninety per cent of the breeding age animals should be females, with a six-year turnover, and ten per cent males with a seven-year turnover. It is estimated that 75 per cent of the females achieve normal annual fawn production. Natural losses of ten per cent are assumed in reindeer herds.

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- (1) A reindeer slaughtered in the fall of its first year will produce around 50 pounds of meat, in the second fall this figure is increased by approximately 25 pounds and after seven years the increase is only around seven pounds.



## REINDEER RESERVE



## GENERAL VEGETATION CHARACTERISTICS



Herd Size with Increases and Reductions from 1934 to 1967

<u>Year</u>	<u>No Fawns</u>	<u>Reductions</u>	<u>Natural Loss</u>	<u>Net Annual Increment</u>	<u>Herd Size End of Year</u>	<u>%Net Loss</u>	<u>% Loss</u>
1934-35		-	-	-	2,370	-	-
1935-36	815	75E	150E	615	2,960	5.1	35
1936-37	936	75E	71E	790	3,750	0.9	32
1937-38	1,181	150E	689E	342	4,092	14.0	32
1938-39	1,281	200E	142E	939	5,031	2.8	31
1939-40	1,896	997	588	311	5,342	11.0	38
1940-41	1,934	422	219	1,293	6,635	3.3	36
1941-42	2,141	549	70	1,522	8,157	0.9	32
1942-43	2,411	865	329	1,217	9,374	3.5	24
1943-44	2,287	1,250	1,180	-143	9,231	12.8	24
1944-45	2,173	1,571	1,224	-622	8,609	14.2	25
1945-46	2,100E	403	2,738E	-1,041E	7,568E	36.0	24
1946-47	2,189	964	2,225	-1,000	6,568	33.4	29
1947-48	1,780	734	1,271	-225	6,343	20.1	27
1948-49	1,857	813	708	336	6,679	10.6	29
1949-50	2,104	784	780	540	7,219	10.8	32
1950-51	2,133	681	1,111	341	7,560	14.8	30
1951-52	2,302	790	550	962	8,522	6.5	30
1952-53	2,206	1,268	1,763	-825	7,697	23.0	26
1953-54	2,243	1,390	736	117	7,814	9.4	29
1954-55	2,172	1,427	715	30	7,844	9.1	28
1955-56	1,743	1,786	1,206	-1,249	6,595	18.3	22
1956-57	1,535	1,183	872	-520	6,075	14.3	23
1957-58	1,712	1,288	558	-134	5,941	9.4	28
1958-59	1,521	652	1,239	-370	5,571	22.2	26
1959-60	1,606	735	454	417	5,988	7.6	29
1960-61	1,960	676	446	838	6,826	6.4	33
1961-62	2,026	676	1,214	136	6,962	17.4	30
1962-63	2,175	920	583	672	7,634	7.7	31
1963-64	1,801	1,127	1,829	-1,155	6,479	28.2	24
1964-65	2,254	1,051	989	-214	6,693	14.8	35
1965-66	2,940	991	1,074	-876	7,569	14.0	44
1966-67	3,700E	1,770E	1,123E	-800	8,369	13.5	49
Total	63,114	28,263	28,846	-	-	Average 12.8	Average 30

E - estimated

1935-1939 Canada's Reindeer, 1940, Dept. Mines &amp; Resources

1940-1959 Krebs 1957

1960-1967 Reindeer Station records



## The Seasonal Cycle in the Reindeer Project, Based on the Last Two Years of Operations

- Spring** - reindeer begin northward movement from vicinity of Inuvik towards summer grazing grounds in Arctic coastal zone from Kugmallit Bay to Cape Dalhousie - herders patrol herd and maintain predator control - fawning occurs in April and May in tundra area - herders move herd north until snow conditions deteriorate and herders are withdrawn and deer allowed to disperse
- Summer** - reindeer widely dispersed in coastal or areas of higher ground to avoid insects - one herder stationed at Tuktoyaktuk to keep on the lookout for general distribution of deer and possible poaching by Tuktoyaktuk residents
- beluga whaling conducted at Kidluit Bay to provide for winter dog food requirements
  - aircraft patrols to locate general distribution of herd
- Autumn** - slaughter of reindeer at a strategic coastal location (Atkinson Point 1965, Warren Point 1966)
- meat transported to Inuvik by small aircraft or boat
  - September - fishing carried out at Kidluit Bay to secure winter dog food requirements
  - rutting period in reindeer herd occurs late August and September - herd begins to collect for southward migration from tundra areas
  - herding operations resume as travel conditions improve with increased snowfall and freezing of lakes
- Winter** - herd moves south between Eskimo lakes and east channel of the Mackenzie, reaching taiga, forested area
- winter slaughters of reindeer commence late November and December in vicinity of Inuvik
  - herd patrolled to prevent straying and guard against predation by wolves, lynxes
  - mid-winter slaughters held while herd still close to Inuvik

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The location of the Eskimo lakes, central to the Reindeer Reserve and the reindeer migratory movements, has resulted in a horseshoe-shaped movement from south-west to north-east.



# THE REINDEER GRAZING RESERVE

Scale 10 ————— 20 miles



## HERD DISTRIBUTION

spring 1965	
summer 1965	
autumn 1965	
winter 1965-1966	
winter 1966-1967	



### The Reindeer Project: Major Impediments, 1935-1963

There were a number of major impediments to the Reindeer Project in the past. Among these were:

1. The lack of a range management plan - a tendency to close-herd the animals on a restricted range.
2. The lack of herder motivation. Eskimo herders were frequently lured away by other more remunerative employment.
3. Poor animal husbandry techniques. No program of selective breeding. The maintenance of steers and mature animals of poor quality beyond the proper slaughtering period.
4. Inability of personnel to reduce costs of operating herds and the station.

### Eskimo Herds

Seven Eskimo reindeer herds were started between 1938 and 1957. By the early nineteen sixties one Eskimo herd existed. The Eskimo herds have proved to be generally unsuccessful, despite considerable assistance. It is interesting to note that the two operators of the last Eskimo herd, herd No. 4, realized a gross income of \$6,000 in 1963. Despite this income they disposed of their herd in 1964. Mr. Graham Douglas, manager of the Reindeer Project during 1952-1959, stated that the owners of private herds required continuous assistance and supervision in herd management. However, he pointed out that herd number 4 had existed for a period of seven years, before it was finally disposed of through sale to the government.

Eskimos became disillusioned with reindeer herding as a vocation, mainly because of the necessity of constant supervision of the herd, both in the summer, when insect hazards made the herds hard to handle, and in the winter under intense cold. (1) The major reason for disposal of herd number 4 by the two Eskimo owners, appears to have been petty disagreements about rotating herding duties, and who should be free to spend time in Tuktoyaktuk. In 1966, the former owners of herd number 4 were living in Tuktoyaktuk. One of the herding owners was virtually destitute, the other was employed part-time in casual employment.

In Alaska, following a period of herd straying and range deterioration, there appears to be a revival of interest in owning reindeer by Eskimos, and the number of reindeer have increased in the last two decades from a low of 19,000 reindeer in 1952, to approximately 50,000 reindeer in 1963. In 1961, there were six major herds involving a total of

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\* In 1958-59 sales from the private herd no. 4 amounted to \$6,697.89.

- (1) The present management system incorporating a frequent rotation of herders and the settlement of families at Reindeer Station, has mitigated many of the original hazards faced by reindeer herders.



28,222 animals. The United States Bureau of Indian Affairs provides assistance to herd owners in various ways, i.e. loans, advice on herd management and marketing facilities.

In 1963, Little (p. 21), estimated that a potential market for 1,200,000 pounds of reindeer meat existed in Alaska and the lower forty-eight states. The cost of establishing an approved abattoir, meeting government inspection requirements, was estimated to be around \$150,000 for a single-bed kill-plant, capable of handling ten to twelve head per hour.

#### The Need for Trained Personnel

In Alaska, studies have shown the major need of the reindeer industry is a nucleus of trained personnel consisting of a range specialist, a stock specialist and a marketing specialist. The need for these in the Reindeer Project will undoubtedly become increasingly apparent during the projected growth period. Tentative plans should be made for recruitment of these personnel in the near future.

#### Management Contracts

During 1961-63, management contracts for the Reindeer Project were given to private interests, on the basis of northern experience and a background in animal husbandry. The contracts were a failure, largely due to absenteeism on the part of the contractors. Now there appears to be considerable hope for the project under the direction of the present resident manager, Mr. S. Johansson, a Scandinavian with experience in reindeer management. His plan calls for an immediate and extended growth of the reindeer herd through the application of Eurasian and North American research in the reindeer industry. His activities have literally revitalized the project during the past two years.

#### Herd Operations Model

The manager of the Reindeer Project has drawn up an operations model to bring the reindeer herd to a peak of efficient production, based on various stable and variable factors, co-incident to reindeer management. The herd operations model takes into account range conditions and capacity for supporting increased numbers of reindeer; the actual and potential productivity of reindeer based on normal productivity; natural losses and annual slaughters of reindeer. This type of planning has helped to place the reindeer project in a better perspective, and has permitted concrete planning, in respect to marketing and the establishment of approved abattoirs. It also permits planning with respect to the Aklavik tannery and the initiation of other projects, such as fur farming.

Various estimates have been made on the carrying capacity of the existing Reindeer Reserve. Porsild, (1928), estimated that 30,000 reindeer could be maintained in the reserve, without damaging or seriously inhibiting growth of available forage.

The present operations model is aimed at raising the herd to 30,000, and maintaining it at that point, through slaughter reductions of immature and mature deer.



Year	Class	Start of Year	Fawn Increase	Natural Losses	Slaughter Reduction	Fawns to Adults	Total End of Year
1967/68	Adult-female	5,926	-	593	200	1,948	7,081
	-male	2,443	-	244	400	498	2,297
	Fawn-female	-	2,220	222	50	(1,948)	-
	-male	-	2,220	222	1,500	(498)	-
	TOTAL	8,369	4,440	1,281	2,150	-	9,378
1968/69	Adult-female	7,081	-	708	200	2,326	8,499
	-male	2,297	-	230	400	376	2,043
	Fawn-female	-	2,640	264	50	(2,326)	-
	-male	-	2,640	264	2,000	(376)	-
	TOTAL	9,378	5,280	1,466	2,650	-	10,542
1969/70	Adult-female	8,499	-	850	200	2,807	10,256
	-male	2,043	-	204	400	357	1,796
	Fawn-female	-	3,175	318	50	(2,807)	-
	-male	-	3,175	318	2,500	(357)	-
	TOTAL	10,542	6,350	1,690	3,150	-	12,052
1970/71	Adult-female	10,256	-	1,026	200	3,505	12,535
	-male	1,796	-	180	400	555	1,771
	Fawn-female	-	3,950	395	50	(3,505)	-
	-male	-	3,950	395	3,000	(555)	-
	TOTAL	12,052	7,900	1,996	3,650	-	14,306
1971/72	Adult-female	12,535	-	1,253	200	4,180	15,262
	-male	1,771	-	177	400	730	1,924
	Fawn-female	-	4,700	470	50	(4,180)	-
	-male	-	4,700	470	3,500	(730)	-
	TOTAL	14,306	9,400	2,370	4,150	-	17,186
1972/73	Adult-female	15,262	-	1,526	200	5,012	18,548
	-male	1,924	-	192	500	1,062	2,294
	Fawn-female	-	5,625	563	50	(5,012)	-
	-male	-	5,625	563	4,000	(1,062)	-
	TOTAL	17,186	11,250	2,844	4,750	-	20,842
1973/74	Adult-female	18,548	-	1,855	300	6,005	22,398
	-male	2,294	-	229	500	1,256	2,821
	Fawn-female	-	6,950	695	250	(6,005)	-
	-male	-	6,950	695	5,000	(1,256)	-
	TOTAL	20,842	13,900	3,474	6,050	-	25,219
1974/75	Adult-female	22,398	-	2,240	400	6,925	26,683
	-male	2,821	-	282	500	925	2,964
	Fawn-female	-	8,250	825	500	(6,925)	-
	-male	-	8,250	825	6,500	(925)	-
	TOTAL	25,219	16,500	4,172	7,900	-	29,647
1975/76	Adult-female	26,683	-	2,668	1,400	4,385	27,000
	-male	2,964	-	298	300	632	3,000
	Fawn-female	-	10,000	1,000	4,615	(4,385)	-
	-male	-	10,000	1,000	8,368	(632)	-
	TOTAL	29,647	20,000	4,964	14,683	-	30,000
1976/77	Adult-female	27,000	-	2,700	1,800	4,500	27,000
	-male	3,000	-	300	100	400	3,000
	Fawn-female	-	10,125	1,013	4,612	(4,500)	-
	-male	-	10,125	1,012	8,713	(400)	-
	TOTAL	30,000	20,250	5,025	15,225	-	30,000



### Function of Reindeer Station in the Reindeer Project

It is difficult to assess the importance of Reindeer Station. As a nuclear settlement its existence is dependent on the Reindeer Project. Due to its relative isolation, staff management problems are minimal

Expenses arise mainly out of maintaining school facilities and the electric generating diesel plant at the station. There is some difficulty in separating purely administrative expenses normal to any northern settlement, and those pertaining to the Reindeer Project.

Thirteen families of "bush" trappers living in the delta proper, centre part of their winter trading activities at Reindeer Station. During the open-water season there is extensive travel in respect to both Reindeer Station and Inuvik.

There have recently been proposals to re-establish the Reindeer Project at Inuvik. As a long-range proposal, in line with plans for expansion of the Reindeer Project, this may have considerable merit. The merits of such a plan have to be carefully weighed against those of retaining a nuclear settlement, offering certain advantages to a small population with a common interest.

### The Market Potential for Prepared Reindeer Products

The potential for prepared reindeer products has not been conclusively tested. While there have been experiments in canned meat, sausage, etc., there does not appear to have been sufficient market analysis. Russian and Lapp reindeer meat is to a large extent marketed as canned meat.

### Sales Potential for Reindeer Meat

In recent years peak sales of \$52,000 worth of reindeer meat and other products were reached in 1964-65, with the marketing of 109,000 pounds of reindeer meat. The bulk of this meat was marketed within the lower Mackenzie region.

The estimates of meat production, based on the herd operations, indicate rapid increases in the amount of meat produced annually.

### Total Production of Meat - Based on Herd Operations Model, 1967-1977

1967/68	188,000 lbs.
1968/69	223,000 lbs.
1969/70	258,000 lbs.
1970/71	293,000 lbs.
1971/72	328,000 lbs.
1972/73	363,000 lbs.
1973/74	471,000 lbs.
1974/75	603,000 lbs.
1975/76	1,073,000 lbs.
1976/77	1,117,000 lbs.

In view of continued population increases in the lower Mackenzie and in the N.W.T., as a whole, the market potential for reindeer meat will continue to grow.



Population estimates for 1971, subject to certain conditions, (N.W.T. today 1963 p. 23, 24), are 12,590 whites, 6,570 Indians and 11,870 Eskimos. The white and Indian population will presumably continue to be concentrated in the Great Slave Lake - Mackenzie Valley region, and will form a readily accessible market for reindeer meat.

#### Consumption of Reindeer Meat in the Lower Mackenzie Region

It is impossible to arrive at average per capita consumption figures for reindeer meat in the lower Mackenzie region due to a number of factors. The major factor is seasonable supply, with the meat being plentiful at short intervals.

Institutional use is a factor of some importance since reindeer meat is used at hostels, the Rehabilitation Centre at Inuvik, and the Old Folks Home at Aklavik, as a substitute for game meat. White children in the hostels also acquire a taste for this meat.

The stores handle reindeer meat in substantial quantities and will be able to handle more as it becomes available. Reindeer meat finds a ready sale at Fort McPherson, Aklavik, and Tuktoyaktuk.

The people at Arctic Red River do not ordinarily obtain reindeer meat except by taking trips to Inuvik.

Increasing interest in reindeer meat is being shown by non-permanent white residents. The Hudson's Bay Company at Inuvik retails both pre-cut packaged reindeer meat, or meat cut on demand, at price slightly below those charged for similar cuts of beef, mutton and pork. Individual purchases of reindeer meat by non-permanent whites, range from packaged meat to the purchase of carcasses for cutting-up and storing in freezers.

With costs of agricultural production rising in southern Canada, it seems unlikely that reductions in the costs of imported meats will occur. Preliminary attempts have been made in 1965 and 1966, to explore the markets for reindeer meat in the upper Mackenzie - Great Slave region, and these appear good.

A potential tertiary market exists in southern Canada and in the Yukon. Inquiries in respect to reindeer meat have been received from as far away as New York.

Agricultural experts in the United States and Canada have predicted declines in livestock raising in favour of more productive crops. Livestock raising will be restricted to marginal lands or factory-type production units. In this respect, the development of northern reindeer industries becomes important in terms of over-all food production. It seems unlikely that the large Arctic and sub-Arctic areas of Canada will otherwise become agriculturally productive.

#### Reindeer Product Sales March 15, 1963 to March 31, 1964

Reindeer carcasses (239)	32,095 lbs.	\$12,756.90
Fawn carcasses (40)	2,340 lbs.	988.50



## Reindeer Product Sales March 15, 1963 - March 31, 1964

Live Fawns	32	1,440.00
Heads	224	164.25
Organs	1,219 lbs.	487.00
Tongues	74	55.50
Legskins	84	8.40
Skins	25	50.00
Head Trophy	2	28.00

Total Reindeer Product Sales \$15,979.15

Monthly Sales of Reindeer Products 1964-65

The monthly sales of reindeer products are given in the table below. The winter months are the peak sales period, when the reindeer are slaughtered in the vicinity of Inuvik. The meat keeps well during the period following slaughter and during transportation to holding facilities or place of sale.

The spring period is the fawning period and the lack of segregation by sex means that slaughtering would interfere with fawning and in addition the animals are recovering from the winter period.

During the summer period, the reindeer herd is widely dispersed but by late summer it is possible to locate and slaughter a number of animals at a coastal location.

<u>1964/65 Sales</u>	<u>Sales</u>	<u>No. Carcasses</u>	<u>Weight</u>
April/1964	\$9,236.63	177	20,702
May	-	-	-
June	2,010.16	41	5,038
July	750.00	-	-
August	-	-	-
September	42.50	-	-
October	-	-	-
November	365.87	5	611
December	206.94	4	482
January	17,524.00	442	41,144
February	1,040.81	78	6,261
March/1965	7,361.09	121	11,806
Totals	38,538.00	868	86,044

Source: - Reindeer Project Records

Increased slaughters in coming years will eliminate the seasonal availability of reindeer meat for local markets and elsewhere. This will enable purchasers on the retail markets to buy as they need, rather than attempting to hold large quantities for use over a prolonged period. Resident Eskimos and Indians are accustomed to consuming meat in large quantities, when it is available.



Reindeer Product Sales 1964/65

Reindeer Carcasses 685	74,015 lbs.	\$30,066.04
Fawn Carcasses (183)	11,129 lbs.	3,791.93
Skins	800	2,486.00
Organs	2,052 lbs.	887.88
Legs	1,309	438.90
Tongues	544	396.40
Heads	599	368.65
Antlers	638 lbs.	102.20
Live Fawns	20	1,400.00
Herder's Meat Issue	7,320 lbs.	<u>2,928.00</u> (value)

\$42,866.00

1965/66 Winter Wholesale Prices for Reindeer Products

Adult: Carcass	125 lb. @ 40¢ lb.	\$50.00
Head	12 lb. @ 10¢ lb.	1.20
Legs	4 @ 30¢ each	1.20
Skins		2.00
Antlers	5 lb. @ 20¢ lb.	1.00
Offal	55 lb. @ 2¢ lb.	<u>1.10</u>
Total		\$56.50

Components other than carcass 6.50  
 Per cent of total value  $11\frac{1}{2}\%$   
 Per cent of carcass value 13

Fawn: Carcass	70 lb. @ 40¢ lb.	28.00
Head	7 lb. @ 10¢ lb.	.70
Legs	4 @ 30¢ each	1.20
Skin		2.00
Antlers	1 lb. @ 20¢ lb.	.20
Offal	24 lb. @ 2¢ lb.	<u>.48</u>
Total		\$32.58

Components other than carcass 4.58  
 Per cent of total value 14%  
 Per cent of carcass value 16%

Retail Prices for Reindeer Meat

During the winter of 1965/66, all cuts of reindeer meat were sold by the Hudson's Bay Company in Inuvik for 55 cents a pound. Comparative prices were charged elsewhere in the region.



Mackenzie Reindeer Project Operations - Economics 1963-66

<u>Operating Expenses</u>	<u>1963/64</u>	<u>1964/65</u>	<u>1965/66</u>
Salaries	41,000	41,000	42,000
Casual Labour	3,000	7,000	5,000
Aircraft	13,000	16,000	11,000
Fuel	9,000	14,000	14,000
Supplies	10,000	12,000	10,000
Cartage	1,000	4,000	4,000
Sales and Office	1,000	4,000	4,000
Miscellaneous	11,000	5,000	-
<b>Total Costs</b>	<b>88,000</b>	<b>101,000</b>	<b>90,000</b>
Less Operating Income	2,000	7,000	6,000
Income from Sales	29,000	52,000	36,000
Gross Position	57,000	-42,000	-48,000
Capital Expenses	16,000	19,000	19,000
Net Position	73,000	42,000	48,000

Potential Income from the Reindeer Herd

Predictions are available in respect to income from meat sales based on the herd operations model established by the current manager. Returns are based on variable prices for reindeer meat.

Potential Income from Herd Operations Model 1967-77

<u>Year</u>	<u>Meat Production lb.</u>	<u>Production Including Byproducts lb.</u>	<u>Income \$ @ 40¢ lb.</u>	<u>Income \$ @ 35¢ lb.</u>	<u>Income \$ @ 30¢ lb.</u>	<u>Income \$ @ 25¢ lb.</u>
1967/68	188,000	206,800	82,720	72,380	62,040	51,700
1968/69	223,000	245,300	98,120	85,855	73,590	61,325
1969/70	258,000	283,800	113,520	99,330	85,140	70,950
1970/71	293,000	323,300	129,320	113,320	96,990	80,825
1971/72	328,000	360,800	144,320	126,280	108,240	90,200
1972/73	363,000	399,300	159,720	139,755	119,790	99,825
1973/74	471,000	518,100	207,240	181,335	155,430	129,525
1974/75	603,000	663,300	265,320	232,155	198,990	165,825
1975/76	1,072,660	1,179,926	471,970	412,974	353,978	294,981
1976/77	1,116,630	1,228,293	491,317	429,403	368,479	307,073

It is anticipated that a reduction in production costs can be effected through increasing the number of reindeer available for slaughter while keeping operating costs at a low level. This will be accomplished by maintaining both current employment and operating expenses. The introduction of loose-herding practises reduced the input of labour during the summer and also the over-all costs.

\* Reindeer Project Records

The major problem in the Reindeer Project lies in increasing production and the maintaining or the reducing of costs.



## Potential Income from Reindeer Industry from Hunting and Tourist Development

At the present time there can be little or no realistic assessment of the Reindeer Project in terms of hunting or tourist development. The nature and extent of the reserve makes it difficult to include reindeer as part of the tourist assets of the region. Obviously there is little potential in sport hunting of semi-domesticated reindeer. Potentials for tourism could become available through the maintenance of a small herd close to Inuvik or at Reindeer Station, as the tourist industry expands in the area.

## Potential Hazards for the Reindeer Industry

One of the major hazards related to the progress of the reindeer industry is the level of radioactivity in reindeer. This is subject to continued surveillance on the part of researchers and the danger is considered to be low. Nevertheless, reports of radioactivity can radically affect public opinion and affect consumption levels.

Within the region, there is some evidence of a trend away from traditional diets, as shown by the decline in the use of whale oil. (1) Also reindeer meat has to actively compete with both fresh and canned southern meats, as well as caribou and other game. Price considerations will be a major factor in the industry. Mr. Johansson, (1966), has estimated that to be competitive reindeer meat will have to be marketed at prices slightly below beef.

## Market for Reindeer Hides

Marketing of reindeer hides has been irregular in the past. A number of hides have been distributed in the eastern Arctic. Within the region, there is a limited local demand for reindeer hides, due to an almost total substitution of imported ready-to-wear clothing, for locally made clothing. It is expected the establishment of the tannery at Aklavik in 1965-66, will greatly expand the demand for reindeer hides. However, it is interesting to note that in Alaska, commercial tanners consider reindeer hides to be useless, due to warble-fly damage. Reports indicate the Russians have effected some control measures through corralling and dipping reindeer in insecticide baths. This could conceivably be done during summer round-ups but at increased expense. In the northern Urals of the U.S.S.R., efficient use of reindeer hides is being made through the production of chamois. It is anticipated the late summer slaughter will reduce inefficient use through warble-fly damage, since hides of fawns and adults are then in good condition.

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(1) However, no declines should be anticipated with respect to moose, caribou or reindeer.

Summer round-ups for marking, castrating male deer and herd counting have been discontinued due to cost, changes in slaughter composition and a discontinuation of the practice of castrating excess male deer.

Aerial photography in the spring can be used to make annual counts of the reindeer herd.



Based on the herd operations model established by the current manager, hide production will be the following in the period 1967-77:

	<u>Hides Produced</u>	<u>Leg Skin Production</u>
1967/68	2,150	8,600
1968/69	2,650	10,600
1969/70	3,150	12,600
1970/71	3,650	14,600
1971/72	4,150	16,600
1972/73	4,750	19,000
1973/74	6,050	24,200
1974/75	7,900	31,600
1975/76	14,683	58,732
1976/77	15,225	60,900

Little, (1963, p. 71), states that 1,236 adult reindeer hides were sold at \$8.50 each in Alaska by the Bureau of Indian Affairs, in 1961.

By 1973/74, the anticipated production of reindeer hides and legskins from the Mackenzie herd, should have provided the basis for the establishment of a medium-sized tannery operation in full-time production. Unless effective planning is carried out for the tannery at Aklavik, it is presumed a market will have to be found for the untanned hides elsewhere. Prices paid by tanners for raw deer, moose and elk hides, are generally low in southern Canada.

Chrome-tanned reindeer hides would provide a large resource for the local handicraft and fur garment industries, or a resource for the establishment of a separate leather goods' industry.

There is a continuing need to develop all potential sources of revenue and employment for local populations.

#### Use of Legskins

The traditional use of caribou and more recently reindeer legskins, has been in the production of mitts and winter footwear. There is a continuing demand in the region for footwear produced from legskins. The legskins, with hair on, are used strictly in the production of the upper halves of mukluks. Also, a demand is developing in southern Canadian outlets for this type of footwear for use in winter recreation.

Experiments in the production of a local doll from reindeer legskins, shows promise of being developed into a small local industry.

#### Private Herds

With the disposal of the last native herd in 1964, Tuktoyaktuk has become of little or no interest to the Reindeer Project, except as a marketing centre for reindeer meat and a source of minor amounts of casual labour. Meat from the last native herd was customarily sold or bartered at Tuktoyaktuk, as well as being sold at Inuvik.

While native herds have thus far proved unfeasible, one wonders whether



a community herd could not be established on Richards Island and placed in the custody of the Tuktoyaktuk Community Council. Porsild, (1945), stated that native caribou used to winter on the island, and reindeer have wintered on the island in recent years. This would help to partially satisfy the requirements of the Tuktoyaktuk residents for fresh meat and would keep them involved in the Reindeer Project. It would also solve the problem of mixing between herds. With some assistance they should be able to control community herd and harvest an annual quota for local consumption.

In the past, Richards Island has been an important summer grazing area for the main government reindeer herd. The setting aside of Richards Island as a Tuktoyaktuk reindeer preserve may conflict with the over-all expansion of the government herd. However, the establishment of an Eskimo reindeer herd might be of substantial assistance to the Tuktoyaktuk economy.

#### Stocking Reindeer in Arctic Areas

Some immediate consideration might be given to stocking certain Arctic locations with reindeer, rather than caribou. In this way some control might be applied to human predation, particularly in areas such as Southampton Island and the Belcher Islands, where caribou have been exterminated or have disappeared. Use of reindeer for a re-stocking project, would permit selection of high quality animals and relative ease of collection and transport. Depending on the areas to be re-stocked and the institution of management policies, such as controlled hunting, the reindeer could be allowed to exist in a feral state. This would eliminate the expenditure of substantial sums in herd control, and yet provide a valuable food resource, which is now lacking in various areas of the Canadian Arctic. In effect, this would be permitting feral stock to develop as a replacement for caribou made extinct from various causes. The need for action, rather than mere speculation, seems to be apparent.

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- (1) The current manager plans on using Richards Island as a summer grazing area for 5,000 deer, following a period of range recovery. Loose herding practices and a lack of marking of individual reindeer, renders impossible the re-establishment of private herds on the reindeer reserve
  - (2) Selection of reindeer for establishment of herds elsewhere could be accomplished at Atkinson Point. A D.C. 3 chartered aircraft could be used to transport reindeer to other locations, i.e. Coral Harbour. Summer stocking would enable reindeer to adapt successfully to new range conditions etc.



## Abattoir Facilities

A glance at the proposed herd operations model and the statistics of meat production, confirms the need for established slaughter and abattoir facilities, to reduce costs in slaughtering and processing reindeer meat.

Preliminary establishment of slaughter facilities took place in 1965-66, when an abandoned radar base at Atkinson Point, was remodelled, and a prefabricated building was erected at Ren Lake, near Inuvik.

In terms of increased production and marketing of reindeer meat, the establishment of government approved abattoirs becomes necessary for the export of reindeer meat beyond the Northwest Territories, to meet potential markets in Yukon and southern Canada. The specific regulations are numerous and confining in respect to abattoir construction.

## Use of Integrated Planning in the Establishment of Cannery and Abattoir Facilities

Considerable attention has been paid to the costs of establishing approved abattoir facilities by the current manager. A preliminary total costing has been made for the construction of abattoir facilities at Ren Lake and Atkinson Point. Both locations have a strategic position, in respect to the seasonal distribution of reindeer herds on the reserve.

The cost of establishing abattoir facilities, based on current material transportation and construction costs, is listed below.

### Total Abattoir Costing in Phases

	<u>Ren Lake Permanent</u>	<u>Ren Lake Semi-Permanent</u>	<u>Atkinson Point</u>
<u>Phase I up to 10 carcasses/hr.</u>			
Abattoir building	\$39,000	\$8,000	\$7,500
Inedible and utility	10,100	16,200	8,400
Cold rooms	41,600	23,200	16,600
Hallway and platforms	1,200	3,300	2,500
Foundation	3,500	1,800	-
Slaughter equipment	11,000	11,000	11,000
Electricity	3,000	3,000	5,000
Water supply	2,000	2,000	1,000
Sewage	2,000	2,000	1,000
Access roads and tractor	<u>1,500</u>	<u>1,500</u>	<u>8,000</u>
Total phase I	114,900	72,000	61,000
<u>Phase II up to 20 carcasses/hr.</u>			
Cold rooms	20,800	11,600	5,800
Hallway	600	3,300	-
Abattoir building	<u>-</u>	<u>4,000</u>	<u>-</u>
Total phase II	21,400	18,900	5,800



Phase III up to 30 carcasses/hr.

Cold rooms	20,800	11,600	5,800
Hallway	600	-	-
Accommodation	<u>5,000</u>	<u>5,000</u>	<u>2,500</u>
Total phase III	26,400	16,600	8,300
Total all phases	162,700	107,500	75,100

Source: Reindeer Project

In the case of Atkinson Point, the erection of an abattoir at this locality as a single phase operation, could affect the potentials for resource integration at Tuktoyaktuk and the development of a specialty food program. Distribution of reindeer in coastal areas in the summer, tends to be erratic, as occurred in the summer of 1966, when a small number of reindeer, (100), were slaughtered, not at Atkinson Point but at Warren Point, and a small aircraft had to be used in corralling the deer at a slaughter point on the beach area.

The deer carcasses were transported by boat from Warren Point to Inuvik. A boat is being prepared to continue this operation in coming years. The use of boat transportation would permit the removal of selected semi-processed carcasses to Tuktoyaktuk, for final processing at a small cannery, or cannery abattoir plant.

It is anticipated that whaling, operating at a Tuktoyaktuk cannery, would be completed by mid-August, leaving the cannery open for use in processing reindeer. Local labour at Tuktoyaktuk is available in late summer and early autumn for a cannery operation, before some of the trappers proceed to inland autumn fishing sites on the Eskimo lakes, and at the mouth of the Kugaluk River, to prepare for winter trapping.

For the present, development of a commercial herring fishery in the Tuktoyaktuk area, is considered to be unfeasible, in an economic sense. Increased economic potential may be derived from the development of food processing programs, resulting in a specialty product not available elsewhere.

Less consideration is necessary in respect to integrated use of a Ren Lake cannery abattoir facility. Processing of fish appears to be the major consideration. Current information contained in the chapter on fishing, indicates an expansion of the commercial fishery will only be achieved at considerable cost. Whitefish, the major commercial species available in the central delta, is not normally canned but is marketed as a fresh or frozen commodity. Canning of local trout would not increase its marketability in the region or in southern Canada, although it would provide small amounts of local employment.

Increases in Employment in the Lower Mackenzie Region

Direct increases in employment in herd management will be slight as



Estimate of Expenses for Operations 1967-1977 \*

<u>Expense</u>	<u>67/68</u>	<u>68/69</u>	<u>69/70</u>	<u>70/71</u>	<u>71/72</u>	<u>72/73</u>	<u>73/74</u>	<u>74/75</u>	<u>75/76</u>	<u>76/77</u>
<b>Herd Size:</b>										
End of Year	9378	10542	12052	14306	17186	20842	25219	29647	30000	3000
No. Slaughtered	2150	2650	3150	3650	4150	4750	6050	7900	14683	15225
Production (000 lb.)	188	223	258	293	328	363	471	603	1073	1117
<b>No. of Employees</b>										
Herding	8	8	8	8	9	9	9	9	10	10
Slaughtering	6	8	10	11	12	13	17	22	40	42
<u><b>Operating Expenses</b></u>										
Salaries	40	43	43	43	48	48	48	48	53	53
Aircraft	19	10	11	12	12	13	13	14	14	15
Fuel	8	9	9	10	11	11	11	13	15	17
Supplies and Equip.	8	9	9	10	11	11	11	13	15	17
Slaughtering	9	11	13	15	16	18	23	30	54	56
Sales and Misc.	3	4	5	6	6	8	10	15	30	35
<b>Total</b>	<u>76</u>	<u>86</u>	<u>90</u>	<u>96</u>	<u>104</u>	<u>109</u>	<u>116</u>	<u>133</u>	<u>179</u>	<u>193</u>
<u><b>Capital Expenses</b></u>										
Slaughter Houses	33	33	34	2	2	-	2	35	60	61
Reindeer Station	2	2	2	2	7	-	2	2	7	2
Major Equipment	-	1	1	1	1	1	2	2	2	2
Vehicles	-	4	-	4	-	-	5	-	5	5
<b>Total</b>	<u>35</u>	<u>40</u>	<u>37</u>	<u>9</u>	<u>10</u>	<u>1</u>	<u>11</u>	<u>39</u>	<u>74</u>	<u>70</u>
<u><b>Total All Expenses</b></u>	<u>111</u>	<u>126</u>	<u>127</u>	<u>105</u>	<u>114</u>	<u>110</u>	<u>127</u>	<u>172</u>	<u>253</u>	<u>263</u>

\* R. Hill



shown in the preceding tables. However, substantial increases in employment in slaughtering and other abattoir operations, will occur. The potentials for increases in employment in tanning and handicraft industries have been dealt with. This will form an important secondary industry in Inuvik, and hopefully, for the Tuktoyaktuk people, at an Arctic coastal location.

The continued use of chartered aircraft will provide economic support for this service industry.

### Economic Summary

An attempt has been made to forecast an economic summary for the operations model for 1967-1977.

### Economic Summary for 1967-1977 Operations Model (1)

Year	Herd Size	Number Slaughtered	Meat Production 000 lb.	Probable Income 000 \$	Operating Expenses 000 \$	Annual Income* \$	Production Cost** ¢
1967/68	9,378	2,150	188	83	76	8.50	40
1968/69	10,542	2,650	223	98	86	9.30	39
1969/70	12,052	3,150	258	99	90	8.20	35
1970/71	14,306	3,650	293	113	96	7.90	33
1971/72	17,186	4,150	328	126	104	7.30	32
1972/73	20,842	4,750	363	120	109	5.80	30
1973/74	25,219	6,050	471	155	115	6.30	24
1974/75	29,647	7,900	603	199	130	6.70	22
1975/76	30,000	14,683	1,073	295	170	9.80	16
1976/77	30,000	15,225	1,117	307	180	10.20	16

\*per animal

\*\*operating expense per pound of meat produced

Fluctuations in annual income per deer are based on the cost of planned improvements staged over the period 1967-1977.

### Research

A voluminous amount of research has been carried out with regard to Eurasian reindeer industries. The U.S.S.R., with a long history of reindeer herding over vast expanses of its Arctic and Sub-Arctic regions, is a leader in both scientific and economic research into the problems associated with reindeer industries. A number of scientific institutes in Scandinavia carry out various types of research and trade journals are devoted to the reindeer industry. In Canada, research has been carried out by government departments and, to a lesser extent, universities. The Canadian Wildlife Service is now engaged in a three-year range study on the Mackenzie Reindeer Reserve.

(1) Estimates of income and operating costs are hypothetical, subject to various factors.



It should be anticipated that physiological research will increase in coming years. Funds for this type of research should be provided by the Federal and Territorial governments. Earlier in the chapter, the need for specialists was mentioned as an integral part of the project.

The Inuvik Research Station offers a number of facilities which are readily available to scientists.

As the Reindeer Project evolves into a large-scale and highly productive unit, the need increases for economic research into consumer preferences, and marketing problems, both in the Northwest Territories and in southern Canada. Studies of this nature become a responsibility of the Industrial Division of the Department of Indian Affairs and Northern Development.

A perusal of the statistics in regard to production in the next ten years, indicates that there is an immediate need for this type of research.

#### Training for the Reindeer Industry

It is to be hoped that the Territorial government, in full realization of the potential of the Reindeer Project, will establish bursaries and scholarships, to enable residents of the lower Mackenzie region to study at universities in programs relevant to the Reindeer Industry.

#### Current Status of the Reindeer Project

Contracts have been in use since 1961 for the management of the Reindeer Project. From the long term viewpoint, this does not appear to be the most satisfactory method of operating the project. Local residents are simply employees although over the years the reindeer herders have grown to feel they have a vested interest in the herd. No successful training programs have been developed which could eventually result in management and operation of the Reindeer Project by local residents. Also satisfactory safeguards have not been developed for difficulties arising from the cessation of a contract.

There is a lack of effective control at the local level. The success or failure of the Reindeer Project is simply vested in the contractor. Periodic inspection trips by officials with little or no direct interest in the operations of the project are entirely unsatisfactory in terms of both financial control and day to day operations of the Reindeer Project.

A number of alternative possibilities have been suggested including crown corporations to permit greater financial flexibility and private enterprise in the form of a share corporation to include herders and interested local residents. Local Eskimos have voiced an interest in the formation of a co-operative. This appears to be feasible but only with a prolonged government investment in advisory staff and subsidies.

The long-term investment in the Reindeer Project by the Canadian Government has been large while the returns have been small. The Reindeer Project is incomplete in terms of a total experiment. The Mackenzie Reindeer Project provides a nucleus for further experimentation in the Canadian Arctic and sub-Arctic, but this hinges on bringing the project into a successful economic operation.



Catastrophies can occur such as devastating fires on the grazing area or large scale straying of deer. The location of the reserve is unsatisfactory in terms of natural barriers for the control of reindeer herds particularly during the period of loose herding.

Effective and large scale game management programs coupled with an increase in barren ground caribou herds could restrict the expansion of the Reindeer Project in the Canadian Arctic except in the case of specific islands capable of supporting herds of reindeer.



## HANDICRAFTS, FUR GARMENTS, AND THE AKLAVIK TANNERY

### Handicraft Production

A wide variety of handicrafts are produced in the region. These range from the typical Indian handicrafts of Fort McPherson and Arctic Red River, to carvings of antler wood and stone produced by Eskimos in the northern part of the region. A current lack of ivory for handicraft production has been compensated, to some extent, by the introduction in 1963, of producing handicrafts from reindeer antlers. A few Eskimo men and women in the central delta area, produce excellent wood carvings from driftwood.

### Artifacts

The term artifacts has been applied to items produced with a cultural and historical connotation. Various artifacts such as harpoons, ulus and Eskimo games, are produced principally by Eskimos at Inuvik.

### Fur Novelty Items

A great variety of novelty fur items have been produced following the success of fur Ookpiks, created at Fort Chimo in the eastern Arctic. Such items find a ready sale as souvenirs. The items range in variation from the Tuktoyaktuk Sikusi, (ice worm), to the Aklavik Mosquito.

The production of ivory handicrafts was stimulated by the American whalers and Alaskan Eskimos. Ivory in raw form was formerly secured through barter with Alaskan Eskimos, although there is some indication there may have been local sources, (MacFarlane 1857 p. 227-228). He further states, that Anderson River Eskimos brought various articles made of ivory into the Anderson River post for trade.

### Local Materials

Various types of handicraft materials are available in the region. These include jade, semi-precious stones, flakes of mammoth ivory, old whalebone and driftwood. Materials are usually collected as an incidental part of hunting or whaling expeditions. Whalebone and driftwood are the only materials which can be collected in any quantity. An Inuvik handicraft specialist made a trip to Kendall Island in 1966, for the purpose of collecting whalebone. The Eskimos, who accompanied him, were able to secure two white whales during the trip, and for this reason counted the trip a success.

Organized trips to collect handicraft materials are expensive, due to the distances involved, the scattered nature of the resources and the small value of the materials. Soapstone is not locally available in the region. The nearest deposit is at Clinton Point 325 miles to the east of Tuktoyaktuk.\* A government-sponsored boat trip to this location by Tuktoyaktuk residents did not materialize in 1966, due to alternative opportunities for good wage employment at Tuktoyaktuk. Small quantities of soapstone have been available for carvers at 20 to 25 cents a pound, but this has been material imported from elsewhere.

Large deposits of ivory and bones have been reported in a number of locations in the Richardson Mountains, by the Peel River Indians.

\* by water



Collection of this resource would be difficult.

### Handicrafts at Fort McPherson and Arctic Red River

Handicraft production has been unorganized at Fort McPherson. Attempts were made to organize handicrafts in 1964, by an Indian Affairs' Agent. A lack of quality control resulted in the production of a large number of items of poor quality. The demand for handicraft by employees of petroleum prospecting outfits in recent years, has resulted in a spiraling of prices.

Excellent beadwork is embodied in the making of the traditional baby-carrying straps, but these appear to have a limited potential as handicrafts, due to heavy expenditures in beading and a lack of utility value. They have a much greater value as artifacts for sale to museums. Limited use is made of caribou skins, although some autumn and winter hides are used as floor mats and sleeping skins. Legskins are used for the production of carrying bags. Others are used for the production of babiche for snowshoe webbing, or for moccasins. (1)

The Kutchin or Loucheux snowshoe is well-made, and may have a sales potential, either as a normal-sized, or miniature item. Miniature toboggans are produced for sale by a few older men.

Classes in beadwork were held in the winter of 1965-66, as part of the adult education program at Fort McPherson. Girls and young women produce attractive bead necklaces, which sell for three dollars. (2) These vary in design from traditional styles to modern types.

In 1966, a field representative of the National Museum of Canada placed a number of orders with the people of Fort McPherson for the production of artifacts, which have disappeared from general use.

The Indian Affairs Branch imported chrome-tanned deerskins from southern Canadian outlets, for sale to local handicraft producers at 45 cents a square foot. In 1965, twenty-nine imported moosehides were retailed at Fort McPherson at a price range of \$29 to \$55 a hide.

Twenty women and nine men in Fort McPherson have manifested an interest in more organized forms of handicraft production. A potential exists for the establishment of a fur-garment industry or leather goods industry.

The construction of a handicraft production center in Fort McPherson, using local labour and materials, would aid the local economy and create an initial interest in the establishment of an industry based on local skills and materials available, in part, from the region.

At Arctic Red River in 1966, a house-to-house survey indicated that no one produced handicrafts. A survey of sales outlets in Inuvik confirmed this. The current lack of interest in handicrafts derives partly from a lack of non-native leadership.

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(1) Warble fly damage to caribou skins is the same as that encountered in reindeer. This eliminates the use of many of the skins for anything but sleeping skins.

(2) Material costs are estimated at \$2.00.



### Imported Carvings and Handicrafts

Both the Hudson's Bay Company at Inuvik and Tuktoyaktuk, sell soapstone carvings from eastern Arctic centers. These are superior to those produced locally from imported stone. A store in Fort McPherson handles Japanese ivory carvings.

### Handicraft Outlets

There are ten non-government handicraft outlets in the region. These include Hudson Bay Company stores, private stores and hotels. Many handicraft producers appear to enjoy being able to sell on the market, rather than through established outlets. Others, who produce some handicrafts at home, complain of a lack of markets, but this is often used as an excuse for lack of interest, ability or industriousness. Some pressure is exerted on local populations by non-permanent white residents and transients.

Government outlets at Inuvik and Tuktoyaktuk, emphasize quality and fair prices. The recent completion of an extremely attractive handicraft outlet in the commercial center of Inuvik, should provide a means of increasing sales potentials, through attractive displays.

Handicraft production at Inuvik was originally sponsored by the Welfare Division of the Department of Northern Affairs and National Resources, as part of a rehabilitation project in the lower Mackenzie region. Emphasis was placed on the provision of handicraft materials at cost prices, working space for craftsmen and a sales outlet. Both production and sales were typical of small cottage industries. In 1966, handicraft production became the responsibility of the Industrial Division of the Department of Indian Affairs and Northern Development.

### Central Sales Outlet

Work was commenced on the construction of a central sales outlet in 1965. This is an eight-sided building constructed of local logs, and offers an attractive work and display centre in the commercial core area of Inuvik, opposite the stores and bank.

### Handicraft Production 1964-66

An effort was made to obtain information on handicraft production, through house-to-house interviews in settlements throughout the region, and in collection of sales data from the Department of Northern Affairs sales outlet.

In general, it appears that handicraft production forms a minor source of revenue in the region. Household interviews resulted in quoted annual incomes of \$50 to \$100 for the majority of producers. Home production is subject to competing interests, particularly in the larger settlements.

Information on revenue, obtained by handicraft producers, through organized outlets, produced similar results. For the majority of producers handicraft production represents a source of pocket money.



Revenue From Handicrafts - Inuvik Handicraft Centre, 1964

	<u>No. of Producers</u>
Less than \$50	89
\$50-\$100	8
\$100-\$200	2
\$200-\$300	<u>1</u>
	100

As can be seen from the statistics, the revenues obtained from handicrafts were small. The period of peak production occurred during the winter months, January, February and March. The summer and autumn months were low production months.

Income Range of Handicraft Producers Operating Through the Inuvik Handicraft Outlet in 1965

<u>Income Range</u>	<u>Number of Producers</u>
less than	
\$50.00	58
\$50.00 to \$100.00	24
\$100.00 to \$200.00	2
\$200.00 to \$500.00	2
\$500.00 plus	<u>2</u>
Total	88

Of the 87 producers, 67 were from locations other than Inuvik. The majority of producers indicated they did not restrict their production to the handicraft outlet alone, but also produced handicrafts for private sales and through other agencies, such as the Hudson's Bay Company, or the Mackenzie Hotel.

On a number of occasions, people were observed offering handicrafts for sale on the Post Office steps, or on the porch of the Mackenzie hotel.

Home Locations of Handicraft Producers Selling Handicrafts through the Inuvik Sales Outlet, 1965 \*

Tuktoyaktuk	6
Old Crow	8
Fort McPherson	4
Sachs Harbour	4
Fort Franklin	1
Mackenzie Delta	8
Inuvik	55
Aklavik	<u>2</u>
	88

\* In some cases the person listed on counterslips was a selling agent for the actual producer.



## Organized Production of Handicrafts

Experimentation is being carried out by the Industrial Division, the Department of Indian Affairs and Northern Development, in the institution of organized production methods, with respect to a small fur item created in the region. Extensive planning has been involved in all phases of production and marketing. Actual production has not yet started.

## Fur Garment and Clothing Industries in the Lower Mackenzie Region

Three major centers for the production of fur and cloth garments have developed in the lower Mackenzie region, since the initiation of the initial project at Aklavik Co-operative, the Tuktoyaktuk Fur Garment Industry and the Inuvik fur garment industry. The Tuktoyaktuk and Inuvik fur garment industries are under the direct supervision and guidance of the Department of Indian Affairs and Northern Development. Non-local specialists in fur garment production are centered at Inuvik and Tuktoyaktuk, and offer guidance and advice to the Aklavik Co-operative and private producers.

### The Tuktoyaktuk Fur Garment Industry

Development of the Tuktoyaktuk fur garment industry began in 1963, following the organization of the Aklavik fur garment industry into a co-operative. A non-local fur garment specialist was responsible for the organization of the industry and for successful production at Aklavik. He moved from Aklavik to Tuktoyaktuk following organization of the Aklavik fur garment co-operative.

### The Inuvik Fur Garment Industry

The Inuvik fur garment industry evolved out of a rehabilitation project, which began in Aklavik and was transferred to Inuvik.

In 1966, this organization was in the process of re-organization, with organized production beginning in June 1966.

### Aklavik Fur Garment Co-operative

The successful establishment of the fur garment industry at Aklavik, resulted in consideration being given to the development of a co-operative.

Organization of the Aklavik fur garment co-operative began in 1962, with meetings being held among interested parties between October 8, 1962, and the date of incorporation on February 4, 1963.\* In 1963, total membership consists of eighteen members. During 1964, membership consisted of nineteen members, six of whom resigned by the end of 1964. The board of directors consisted of two Eskimo women and three Indian women. The manager and secretary-treasurer was a local Indian male with an above average education.

In 1966, total membership consisted of fourteen members. The Board of Directors consisted of three Eskimos and two Indians.

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\* Twelve Eskimos, four Indians were original subscribers to the co-operative. In 1965, direct labour costs amounted to \$9,116.95 paid to members of the co-operative.



The co-operative received a loan of \$20,000 under the Eskimo Loan Fund, to enable it to make purchases of capital equipment and raw materials necessary for production.

Administrative assistance and advice have been supplied, on a free basis, by local administrators and industrial projects officers of the federal government.

The long-term objective in forming a fur garment co-operative, has been to enable residents of Aklavik to operate and to become capable of operating, a viable industry and a small business, based on local resources with decreasing inputs of government supervision and assistance.

By 1966, the co-operative members were still vague as to the organization and functions of a co-operative. A number of meetings were held, during the course of the year, to explain the role of the individual co-operative member. Despite this lack of understanding, the co-operative has functioned as a productive unit, and financial statements have been issued annually, with government assistance. The manager and secretary-treasurer have gradually acquired necessary skills in business procedures.

Co-operative members, as producers within the co-operative, have received substantial earnings, through the production of fur garments, which have been sold both in the region and to southern outlets.

The need for skilled technical assistance in handling furs and producing fur garments, has been overcome through government assistance, in the form of a fur garment expert who was stationed at Tuktoyaktuk but made periodic visits to Aklavik. Unfortunately, the fur expert resigned from his position as a technical officer in 1966. A fur expert is now being recruited in southern Canada.

#### Individual Earnings, Fur Garment Industry - Aklavik, 1965

<u>Ethnic Status</u>	<u>Sex</u>	<u>Amount</u>
Indian	F	\$490.50
Eskimo	F	947.45
Indian	F	320.05
Metis	F	333.60
Eskimo	F	549.50
Indian	F	665.50
Eskimo	F	939.25
"	F	520.75
"	F	759.85
"	F	513.10
"	F	939.00
Indian	F	292.45
Eskimo	F	170.00
Indian	F	937.50
Eskimo	F	703.45
Indian	M	4,200.00
Total		\$13,281.95



Elsewhere in the lower Mackenzie region, the Tuktoyaktuk fur garment workers have shown interest in the formation of a co-operative similar to the one in operation at Aklavik. In recent years, the Tuktoyaktuk fur garment workers have built up a superior reputation in the production of fur garments. The Tuktoyaktuk people also appear to be more aggressive than the people of Aklavik. In order to avoid the development-lag, experienced at Aklavik, co-operative development officers, employed with the government, have concentrated on carrying out initial groundwork by holding meetings and discussions over an extended period. It is anticipated that a fur garment co-operative will be formed some time in 1967.

Since 1965, the Department of Indian Affairs and Northern Development has employed an older Alaskan Eskimo, who has lived in the region for 47 years, in a quasi-technical position as an assistant in co-operative development. He is an enthusiastic member of the Innuvit Co-operative at Inuvik, and is fluent in both Eskimo and English, an important factor among older Eskimos in the region.

A co-operative development officer has been stationed in the lower Mackenzie region since 1965.

### Contributions to the General Economy

The fur garment industries have made significant contributions to local economies, both in terms of employment and in a productive sense. The women involved in the fur garment industries have frequently earned more than their husbands have earned from trapping. Also, a number of women supplement their returns from the industry through producing small items at home. Whites in Inuvik and elsewhere, frequently have parkas made outside the fur garment centers. The profit margin, for producers working outside the fur garment center at Inuvik, is quite small, although some economy is realized in the use of less expensive materials, such as fur-trim, salvaged from various sources. A work relationship, or minor connections on a social scale, are frequently a source of contact for white residents wishing to buy fur garments.

### The Producers

The producers in the fur garment industries are drawn from the middle, to older, married age groups. The producers are predominantly Eskimo, although Indians and a few Metis participate at Inuvik and Aklavik.

A fur garment industry was developed in Aklavik in the late nineteen fifties with the institution of a training program. As a result of the movement of some families from Aklavik to Inuvik, some trained fur workers now live in Inuvik. These people have provided the nucleus for a garment production shop in Inuvik.

### Ethnic Origin of Participants in Fur Garment Production

	<u>Inuvik</u>	<u>Aklavik</u>	<u>Tuktoyaktuk</u>
Eskimo	5	6	19
Indian	1	7	
Metis	<u>1</u>	<u>1</u>	
Total	7	14	19



There are a number of reasons for lack of participation on the part of younger women. The work is slow and tends to be tedious. Also, the younger women often have young children to care for. In Inuvik, the requirement of appearing on time is a deterring factor. This can also be noted in other types of work.

Some statistics are available for the Tuktoyaktuk fur garment industry showing sales and wages in 1965.

Tuktoyaktuk Fur Garment Shop January to October, 1965

<u>Month</u>	<u>Sales</u>	<u>Wages</u> (Paid during the month)
January	\$4,100.00	\$2,018.40
February	2,200.25	1,032.40
March	3,546.00	3,499.25
April	1,795.00	2,489.85
May	1,787.35	1,463.75
June	2,969.45	2,269.55
July	3,438.85	2,941.10
August	4,315.40	3,301.50
September	3,506.10	2,205.00
October	4,422.33	2,235.50
November	6,089.45	2,008.45
December	4,774.81	1,912.50

Individual incomes of producers are shown below:

Income of Fur Garment Producers at Tuktoyaktuk, 1965

<u>Worker</u>	<u>Total Amount Earned</u>
1	1,019.00
1	588.75
1	533.00
1	491.00
1	2,796.00
1	1,623.00
1	868.50
1	2,607.75
1	2,038.50
1	346.00
1	2,052.17
1	3,225.25
1	2,780.75
1	2,190.50
1	1,783.00
1	2,795.70
1	72.00
1	436.00
1	2,636.50
	<u>\$28,087.67</u>



Monthly Production

Considerable variation is shown in monthly production figures, types and numbers of items produced. This is due to a number of factors, such as stock of various manufactured items on hand, raw materials available, orders received and interest of the women in producing items of one type or the other.

<u>January 1966</u>			<u>June 1966</u>		
<u>Type</u>	<u>Quantity</u>	<u>Sale Value</u>	<u>Quantity</u>	<u>Cost</u>	<u>Sale Value</u>
Parkas and Jackets	36	\$5,490.00	6	\$455.00	\$650.00
Hats, mitts, handbags	48	739.50	53	435.00	621.00
Footwear	142	1,444.50	201	1,455.00	1,818.00
Rugs and cushions	40	503.00	8	175.00	249.00
Tukpick	177	808.75	29	94.00	134.50
Work on customers' goods	15	124.25			
Souvenir	47	163.15	253	272.00	388.25
Dolls	13	133.50	45	379.00	329.00
Iceworms	121	256.00			

Tuktoyaktuk Fur Garment IndustryTOTAL SALES AND PRODUCTION - APRIL 1965, MARCH 1966

<u>PRODUCTION</u>		<u>SALES</u>	
<u>MONTH</u>	<u>VALUE</u>	<u>MONTH</u>	<u>VALUE</u>
April '65	\$ 5,430.25	April '65	\$ 1,795.00
May	3,157.15	May	1,787.35
June	4,062.75	June	2,969.45
July	5,102.95	July	3,438.85
August	3,071.50	August	4,315.40
September	6,527.75	September	3,506.10
October	8,253.50	October	4,422.33
November	4,617.00	November	6,089.45
December	4,019.25	December	4,774.81
January '66	2,976.50	January '66	9,562.65
February	3,234.75	February	2,833.25
March	5,989.30	March	4,153.75
	<u>\$56,442.65</u>		<u>\$49,648.39</u>

Source: Tuktoyaktuk Fur Garment Industry

During 1965, the Tuktoyaktuk fur garment workers were paid a piece work rate. The usual system in industries of this type is to pay on a piece-work basis. Individual incomes from fur garment production, in many cases, exceeded individual incomes of husbands from trapping and casual labour in 1965.



### The Importation of Furs

Large amounts of money have been involved in the importation of furs. For example, the 1966 requisition for furs by the manager of the Tuktoyaktuk fur garment industry, amounted to \$25,000.00, and involved trips to fur centers in Winnipeg and Montreal.

The following furs were ordered by the Tuktoyaktuk fur garment industry for production in 1966-67.

	<u>Average Price</u>
400 Hairskin seals - tanned	\$15.00 ea.
3,000 muskrats	2.15 ea.
300 beaver skins, unplucked, tanned	8.00 ea.
100 wolverine skins	25.00 ea.
50 skins wolf, tanned	35.00 ea.
50 skins bobcat	5.00 ea.
2,000 rabbit skins - white only	1.50 ea.
50 hides domestic calf	9.00 ea.
40 moosehides	28.00 ea.

In past years, dependence on outside fur sources evolved from the need for tanned furs in the industry. Also, there have been some items which cannot be supplied locally, such as domestic rabbit or calf skins, which have been used extensively in the production of less expensive items, (hats and footwear). The need for certain types of wild fur, wolf, wolverine and bobcat also cannot be met within the region. (1) A local small store operator at Aklavik sells up to twenty wolverine skins annually. The Hudson's Bay Company stores in the region also stock wolverine skins.

The establishment of the tannery at Aklavik in 1965-66, should effectively reduce the dependence on imported furs, such as beaver and muskrat. In 1966, 12,000 muskrat pelts were purchased by the fur co-operative manager at Aklavik and through the Hudson's Bay Company from local trappers. A number of skins were damaged. This was an indication that local fur purchases must be made by some one possessing skill in fur-grading and who is impartial in dealing with local fur producers.

The purchase of local furs could be effectively used in improving production methods by trappers. Also, some incentive would be afforded to local trappers by the local payment of good prices for furs. This could have a pronounced effect on independent fur dealers in the region, as independent trader at Aklavik had to close down. This also has ramifications in the field of credit for trappers. This will be offset by the amalgamated program of trapper assistance.

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(1) Substitution of species is virtually impossible, except perhaps the use of lynx for bobcat, subject to price differences. An alternative to competing with fur dealers would be to purchase furs through them at fair prices. These dealers have had years of experience in competitive fur buying.



Imported Material Costs in Local Garment Production for Home Use and Resale

	<u>Local Average Prices</u>		<u>Source</u>
Moosehide	\$40.00 standard hide	\$2.20 sq. ft.	H.B.Co.
Duffle	8.95 a yd.		H.B.Co.
Stroud	8.95 a yd.		H.B.Co.
Grenfell	3.98 a yd.		H.B.Co.
Nylon Duffle	3.31 a yd.		H.B.Co.
Canvas	75 cents a yd.		H.B.Co.
Duplan Nylon			H.B.Co.
Covering	1.35 a yd.		H.B.Co.
Wolverine	45.00 a hide (estimated cost of \$18.00 for a complete trim on a parka)		

Material costs for fur garment and handicraft production are high where materials have to be imported from the south.

The above list is a partial indication of the present costs of materials used in the production of clothing items, such as parkas, boots, etc. Ten per cent of the value of the materials used is commonly added for cutting and wastage in the fur garment industries.

In 1965, the Tuktoyaktuk fur garment industry ordered \$6,871.00 worth of duffle, stroud, canvas and \$524.18 worth of sewing threads, dyes, etc.

The difference in prices for locally purchased moosehide and wolverine skins, as compared to those purchased elsewhere, arises out of a difference in grade and local mark-ups.

Sample Cost Listing - Inuvik Fur Garment Industry

<u>Cloth</u>	<u>Supplies</u>	<u>Wage</u>	<u>Cost</u>
Parkas			
Adult	\$ 46.00 to 63.00	\$15.00  15.00	\$61.00  78.00
Cloth Children's	15.24	10.00	25.24
Parka	12.55	10.00	22.55
Canvas boots	2.60	2.50	5.10
Duffle socks	2.50	1.30	2.35
Man and Kayak	1.96	11.00	12.96
Beaded slippers	3.70	7.50	11.20
Miniatures	.25	.90	1.15

Various prices are charged according to the manufacturing costs.



Sample Local Prices of Items Produced by Fur Garment Industries, 1966

<u>Item</u>	<u>Type of Fur</u>	<u>Price Range</u>
Parkas (adult)	Muskrat	\$195 - 215
	Fisher	300 - 310
	Beaver	255
	Rabbit	145 - 160
	Seal	200 - 225
Parkas (children)	Muskrat	42 - 55
	Rabbit	30 - 45
	Cloth	28 - 35
Slippers (adult)	Muskrat	12
	Rabbit	10
	Seal	12
	Fisher	15
Slippers (children)	Muskrat	6 - 8
	Rabbit	5 - 8
	Seal	5 - 10
Mukluks	Seal	18
	Canvas	7 - 9
	Rabbit	13 - 16

Various items are produced which may be classed under the category of novelty, or specialty items.

Novelty Fur Items - Sample Price Range

Cushions -	muskrat	\$12 - \$15
	seal	8 - \$15
	rabbit	8 - \$15
Rugs	seal	\$80 - \$120
	muskrat	20 - 50
Dolls	cloth cover	7 - 9
	fur	8 - 12
Tukpiks	various types fur	2 - 10
Ice Worms	various types fur	3

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Source: Fur Garment Industries



### The Need for Experts

The initial successes of the fur garment industries in the region, may be attributed to the use of personnel with extensive experience, in the production of fur garments in non-government sponsored industries. No local trainees have yet emerged with adequate qualifications, both in management and operational procedures. The Indian manager at Aklavik, while showing increasing interests in management procedures, manifests little interest in actual production methods.

The current lack of a fur garment expert will be an effective handicap to the industries. Attempts to provide assistance, in both management and production, on a regional basis, have not yet been totally successful. Government assistance in this form is a paramount need in the region, and can only be surmounted by recruiting suitable personnel from southern industries.

### Future Trends

Increases in production can be contemplated in terms of southern markets. There are ample fur resources at the local level, and production of leather goods would expand the revenue potential and permit experimentation with more systematic production methods. The Indian groups in the southern part of the region represent an untapped resource for this type of industry.

### The Need for Established Marketing Systems

A number of outlets in southern Canada are supplied on a limited and infrequent basis. This leads to friction between the supplier and the retailer. A number of orders have been rejected in the past due to a lack of materials, the limited number of producers and inability to supply on schedule. What does reach the southern outlets is usually well received, but the quantities are small and do not meet the potential demand.

### The Aklavik Tannery

In 1961, Black recommended that consideration be given to the establishment of a tannery in the Mackenzie Delta area, to eliminate costs involved in sending furs elsewhere to be tanned, and to increase the income sources for the local population.

This recommendation was given serious consideration in 1963. Plans for the establishment of a tannery were initiated in 1964 by the Industrial Division of the Department of Northern Affairs and National Resources. Equipment and materials were ordered for delivery in 1965, and a tannery expert was employed to supervise the actual establishment of a tannery at Aklavik. In 1965, four vocational trainees, including two local white trappers, were recruited from Aklavik, for a training course in tannery operations and put on course at Calgary, Alberta. The tanning process selected as most suitable was the alum process, a simple and relatively inexpensive process in common use in tanneries in southern Canada, and one which would involve a maximum use of hand labour.



In 1965-66, a small tanning operation was established in an abandoned naval building at Aklavik. The two local white tannery trainees soon lost interest in the project and left. One of the white trainees, a middle-aged man, had difficulty in accepting supervision. The other white trainee, a younger man, took up more remunerative employment in Inuvik with the Northern Canada Power Commission.

In September 1966, the tannery staff consisted of the non-resident white tannery specialist, a male Eskimo, a female Eskimo, a female Indian and a female Metis. The local employees had begun work in April 1966. The tannery specialist indicated that local employees worked well under continuing supervision, but could not be entrusted with keeping the simple plant in operation in his absence.

Tannery Production between June 1 and July 25, 1966, consisted of the following:

	<u>Number</u>	<u>Value</u>
Muskrats - dressed	2,649 @50 cents	\$1,324.50
Ground squirrel - sik sik	109 @35 cents	38.15
Reindeer Legs	935 @50 cents	467.50
Bears - grizzly	2 @20.00	40.00
		<u>\$1,870.15</u>

Materials Used:

Alum	635 lbs. @.10 cents a lb.	63.50
Salt	2,158 lbs. .0664 cents a lb.	143.29
Soda	21 lbs. .1525 cents a lb.	3.21
Oil		<u>25.00</u>
		\$235.00

Wages - trainees 4 in number	791.00
- supervisor	900.00
Electricity	<u>174.36</u>
	\$1,865.00

Loss during the period 230.21

During the period the tannery trainees were on a vocational training allowance pending completion of training. The economies realized from low labour costs will be replaced by prevailing casual labour rates in the region.

The difficulties of establishing a small-scale project were soon realized and were due to lack of space, the need for constant supervision of trainees, and a need for an improved water supply. (1) Backlogs of skins and hides for tanning rapidly accumulated, resulting in a need for storage space.

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(1) Water is available only in the summer. There are no facilities for melting ice into water in amounts required to keep the tannery in operation during the winter.



Samples of the tanning process have proved less satisfactory than custom tanned products imported from the south. These difficulties, however, may be considered as being temporary. However, the primary need for increased space and water supplies are not readily overcome at Aklavik. Inuvik, with a continuous supply of water, storage space and local labour, seems to be a far better location. In terms of the needs for local employment in the smaller settlements, there is some validity in ameliorating and improving physical conditions at Aklavik.

The successful development of a tannery in the lower Mackenzie region, can be considered of major importance to the Reindeer Project and the local trapping industries.



## Conclusion and Recommendations

Despite the relative abundance of natural resources, the Lower Mackenzie Region is a sub-marginal area with a major part of its economy based on government activities. The resource base and its potential for expanded utilization have been examined in this report. The solution to expanded utilization of the resource base does not appear to lie in further use of subsistence or modified subsistence methods which have become or are rapidly becoming obsolete in terms of producing income, but rather in developing new methods pertinent to different localities and incorporating new technologies. There are no instant formulas for resource development in the Canadian north and trial and error methods become increasingly expensive in high latitudes. The development of resource based industries calls for improvements in transportation and marketing as well as improved technologies in resource harvesting.

The continuing development of resource based projects and the institution of new projects will provide new sources of employment in the Lower Mackenzie Region. However, these are only partial solutions to the economic problems of the Lower Mackenzie Region. Many of the projects and resource based industries will employ limited amounts of labour on a full-time or seasonal basis.

A real problem exists in increasing income levels of large sectors of the resident population. In recent years, the bulk of government expenditures in the Lower Mackenzie Region have been directed towards the development of the settlements. The growth of government administration and other facilities during the last decade have encouraged an increasing settlement orientation of the resident populations and a decline in subsistence economies. Employment data indicates a slow rate of growth in permanent employment in the settlements. In Inuvik, permanent forms of employment are predominantly occupied by recent immigrants to the region rather than local residents. The service industries are well developed and have little potential for expanded use of local labour. Casual labour, winter works programs and construction projects inject substantial amounts of money into local economies. However, these are seasonal factors in employment and do not permit individuals to accumulate sufficient reserve funds for use during slack periods or investment in capital equipment. It should be anticipated that large scale construction projects in the settlements will inevitably decline.

Large settlements call for the development of industries capable of employing local labour on a full-time basis. Under existing conditions, the relocation of southern based industries to the Lower Mackenzie Region is unlikely to occur due to distance from markets, existing transportation systems and high labour costs. Various forms of assistance to industry may overcome these problems.

Increased labour mobility is desirable in the Lower Mackenzie Region where a large number of the local residents are engaged in subsistence activities supplemented by casual labour, winter works programs, small government projects and welfare. The more advanced age groups cannot be expected to relocate in other areas of greater economic development. The major problem lies in encouraging the younger age groups to seek employment elsewhere. This problem is complicated by the need for training and social conditions existing in the region. Detailed labour force surveys and the establishment



of employment records would provide a basis for initiating training programs.

Labour force surveys and training programs serve little purpose unless they are backed up by detailed surveys of existing and potential employment agencies and their labour requirements both in the Territories and elsewhere.

In many respects, this report is an overview of a rather complex region. It also offers an insight into a significant part of the Mackenzie Valley system.

#### Regional Development\*

It is recommended that the Northwest Territories be divided into a number of specific regions based on existing potentials for development. This would provide a sound basis for:

- a) large scale development programs in some regions and a re-adjustment of dispersed populations elsewhere;
- b) integrated programs of resource utilization, community development and the establishment of industry;
- c) improvements in transportation;
- d) the development of markets and marketing systems both in the Territories and elsewhere. Regionalism would permit a greater co-ordination between the activities of various government departments.

#### Transportation

1. A reduction in air transportation costs is of primary importance to the economy of the Lower Mackenzie Region. The problem of high transportation costs is endemic to Arctic and sub-Arctic communities in the Territories.\*\*
2. The Mackenzie Valley road system appears to offer the greatest potential in terms of linking communities along the Mackenzie Valley, and providing a freighting route from existing southern supply centers. It would also provide an important tourist access route.
3. Local road development programs should be co-ordinated with various works programs and community development programs to permit the maximum use of local labour. A system of summer works programs co-ordinated with the development of access roads, tote trails, etc. would provide local employment during the summer period to communities where construction projects and casual labour programs do not supply adequate sources of income.

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\* This is a logical out-growth of area economic surveys and the development of projects on a localized basis. A concrete body of information now exists for the development of regional concepts.

\*\* High transportation costs are an inhibiting factor in seasonal labour movements and emmigration of population from the region.



## Trapping

1. It is recommended that a fur productivity assessment program be carried out with respect to existing trapping areas.
2. It is recommended that a qualified biologist be added to the game management staff in the Lower Mackenzie Region.
3. A return to individual and family trapping areas appears to be essential to protect full-time trappers in areas presently being over-exploited by part-time trappers working from the settlements at certain seasons of the year.
4. In some areas, large managed group areas appear to be feasible (i.e., the Anderson River area, the Hungry Lake area).
5. Continued assistance in various forms (grubstakes, transportation to hinterland areas, re-establishment loans and marketing devices will be necessary to enable the majority of trappers to continue trapping. These forms of assistance must be supplemented by increasing amounts of technical assistance to bring about a general improvement in trap line management, trapping techniques, utilization of the total fur resource and proper pelt handling.
6. It is recommended that young trappers with some ability and interest in trapping be assisted through establishment loans to become properly equipped and move into new trapping areas rather than remaining on the family trapping area.
7. It is recommended that two or three professional trappers of proven ability be retained by the game management section on a seasonal contract basis to carry out demonstration trapping projects in hinterland areas and assist the trained biologist in management programs.
8. The function of game warden should be separated from game management.
9. Marketing systems have been advocated as a means of overcoming the difficulties experienced by trappers in obtaining good fur prices. A marketing system calls for a large volume of furs being shipped to auction centers, grading of furs by expert fur graders, and direct representation at fur auctions. In Alaska, the establishment of marketing systems has been studied and found to be impractical due to the economies of scale. In the Lower Mackenzie region, trappers are producing furs in such small quantities that it is difficult for them to ship furs to auction without being advanced credit.
10. There may be some feasibility of establishing a marketing system for trappers throughout the Mackenzie Valley with a central collection point at Yellowknife or Fort Smith for grading and sorting furs into lots suitable for auction. It is recommended that the problem of establishing a marketing system be examined by the game management services. Depending on the results of a feasibility study, it is recommended that a fur grading expert be employed by the Department of Indian Affairs and Northern Development to provide fur grading and sales representation for a large scale fur marketing association. It is assumed that the fur grading expert could be of service in fur productivity programs and offer assistance



to trapper groups and fur garment industries in the Territories during interim periods between sales.

11. A major solution to the problems encountered by the trapper in marketing and low fur prices appears to exist in an up-grading and expansion program with respect to the fur garment industries in the Lower Mackenzie Region. This would permit marketing furs at fair prices at the local level. Successful operation of the Aklavik tannery would prove to be a vital factor.

### Fishing

1. A conflict of interest occurs between domestic fishing needs and commercial fishing in the Lower Mackenzie Region. A full scale testing program by the Department of Fisheries is required to determine whether or not commercial fishing is feasible on a large scale in the central delta zone.
2. The development of a cannery and specialty foods program at Tuktoyaktuk may overcome the difficulty of marketing fish stocks available in the Arctic coastal zone. It is anticipated that a cannery development would be based on an integrated resource use program (utilizing white whale, fish and reindeer).
3. Increased revenue from fishing could be realized through the development of sports fishing potentials in the Lower Mackenzie Region, particularly in the Eskimo Lakes, Sitidgi Lakes, Ya Ya Lakes and Travaillant Lake areas. This involves the establishment of overnight cabins at good fishing locations and the availability of guides.
4. A community freezer at Arctic Red River may revive interest in domestic fishing. There are indications that local markets in other settlements could be expanded by more regular supply systems.
5. It is recommended that experiments with fish traps be conducted on the Peel River as a project of the Industrial Division in collaboration with Game Management Services in an attempt to increase the returns of the domestic fishery.

### Lumbering

1. While lumber resources are available in the region production costs must be lowered to meet competition from imported lumber.
2. Centralization of the lumbering industry on the major resource area will offer economic advantages in a region where scattered lumbering operations have not proved to be feasible.
3. Use of pre-cut lumber to meet local housing needs in the Lower Mackenzie region is necessary to provide interim markets for local lumber pending a growth in other sectors of the economy and the development of markets in the western Arctic and northern Alaska.
4. Active government participation in the primary phase of lumbering industry should be slowly phased out in the Lower Mackenzie region and equipment



disposed of to interested entrepreneurs through Crown Assets Disposal.

### Satellite Communities

1. For the present, small satellite communities do not represent an economically viable concept in the Lower Mackenzie region. Subsistence activities are likely to decline as the older age groups become less active. Also no substantial markets have developed in the settlements for country produce.
2. Continued assistance should be given to small groups wishing to trap and hunt in hinterland areas. Such assistance can take the form of transportation and construction of base trapping camps. Trappers simply do not possess reserve funds to enable them to build proper trapping cabins or finance transportation costs to hinterland areas.
3. There are specific hinterland areas where permanent trapping cabins could be established from which trapping groups could operate during the winter (i.e. the Hungry Lake, Anderson River, Snake River areas). In time these could also be used in tourist development programs.

### Tourism

1. There is ample potential for the development of tourism in the Lower Mackenzie Region.
2. The greatest potential for tourist development at the present time exists at Tuktoyaktuk.
3. Some guidance and adult education are necessary to encourage local residents to participate in a tourist development program.
4. It is recommended that a tourist development officer (an officer of the Industrial Division of the Department of Indian Affairs and Northern Development) be selected for work in the Inuvik Region including the Lower Mackenzie Region. This officer would be responsible for working with local groups in developing tourist facilities. His duties would include planning and initiating tourist development programs by local residents. It is anticipated he would work closely with Advisory and Community Councils in the respective settlements and with the Inuvik Chamber of Commerce.
5. Tourist publicity brochures are required for the promotion of tourism. These are presently being prepared under contract for the Industrial Division of the Department of Indian Affairs and Northern Development. Information services are needed at Inuvik.
6. It appears there are potentials for big game hunting from Fort McPherson into the northern sector of the Mackenzie Mountains and into the Yukon. This requires accurate game surveys and the establishment of accommodation and outfitting services. This could be combined with the possible development of a co-operative at Fort McPherson. It is recommended this phase of the tourist industry in the Fort McPherson area be reserved for local Indians and Metis under the guidance of a qualified tourist



development officer.

### The Reindeer Project

1. The institution of improved herd management policies is a continuing necessity in this project. The culling of unhealthy and aged stock is incidental to periodic slaughters. Annual round-ups of the herd are required for accurate tallies and the establishment of a selective breeding program. In the past, summer round-ups have proved to be expensive due to the dispersed nature of the herd. The substitution of winter round-ups would be an advantage and prove less costly.
2. Concrete training programs should be established to enable local residents to assume management and operation of the Reindeer Project.
3. The construction of expensive abattoirs is predicated on the successful build-up of the present herd. For the present emphasis should be directed towards meeting market requirements in the N.W.T.
4. A re-assessment of the Richards Island grazing area should be made in the near future to overcome the possible difficulties arising from loose herding during the summers.
5. Despite the continuing high costs experienced in this project, it is of major importance in a program of integrated resource use in the Lower Mackenzie Region, through the development of specialty foods programs, canneries and the Aklavik tannery.

### Proposal for the Establishment of a Cannery at Tuktoyaktuk

The proposal for the establishment of a cannery at Tuktoyaktuk is based on large stocks of white whale which are available in Kugmallit Bay during July and until mid-August, fish and reindeer. The development of a cannery would not affect the normal subsistence requirements of the Tuktoyaktuk people. It would provide them with an alternative source of revenue. It also could be integrated with tourist development. In addition to the production of specialty foods, bone meal, mink rations and dog food could be produced.

Initially, the operation of a cannery would be seasonal and be divided into the following phases:

1. Processing of whale products - July to mid-August
2. Processing of fish - August and September
3. Processing of Reindeer - September

While it is anticipated that sufficient whales could be purchased from local hunters, there may be a necessity of supplementing this source through the establishment of a whaling station at Kittigazuit, Hendrickson Island or Kidluit Bay all of which are readily accessible from Tuktoyaktuk.



It is anticipated that some hides from this operation could be diverted to the Aklavik Tannery and the leather used in local handicraft production.

### Recommendation

That a plan covering all phases of development, production and marketing be devised by officers of the Industrial Division of the Department of Indian Affairs and Northern Development (in collaboration with officers of the Department of Fisheries).

It is anticipated the cannery and specialty foods project would become a part of co-operative development in Tuktoyaktuk.

The proposal for the development of a cannery and specialty foods program depends upon an accurate assessment of the market potential for specialty food products both in the Territories and elsewhere.

### Proposals for the Establishment of Mink Ranching

The establishment of mink ranching in the Lower Mackenzie Region appears to be feasible. It is recommended that a program be initiated to establish a mink ranching project.

Phase 1: Examination of the potentials for mink ranching by a specialist of the Department of Agriculture and an experienced mink rancher.

Phase 11: The development of plans for the construction and operation of a mink ranch taking into account location needs, access to food supplies, etc.\* This will be based on the report of the experts employed in phase 1.

Phase 111: Establishment of the ranch and purchase of necessary breeding stock. Employment of an experienced mink rancher for at least the first two years of operation. Training of two local residents in mink ranching.

Phase 1V: Full scale production of ranch mink. Establishment of a cross breeding program using native wild mink. Use of the ranch for pelting demonstrations, preparing pelts for markets.

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\*While it is anticipated large supplies of coarse fish can be obtained from the domestic fisheries, the successful establishment of mink ranching also depends on the success of the Reindeer Project and increasing the availability of white whale at low cost.



It is anticipated that the mink ranch would be operated on a revenue producing basis and that the costs of establishment would be amortized within a few years of operation. It is hoped that local residents could then take over the operation.

#### Handicraft and Fur Garment Industries

1. There is a continuing need for experts in fur and cloth garment production to assist local producers in marketing quality goods marketable both within the region and on southern markets.
2. The establishment of marketing systems appears to be a paramount necessity for an expansion of the handicraft and fur garment industries.
3. The establishment of a handicraft and fur garment industry at Fort McPherson would provide a needed source of revenue in this community. Government assistance is necessary in this type of project. Community development funds and local materials could be used in the construction of a production center. Loans are also necessary for the purchase of equipment and material. It is recommended that a projects officer experienced in establishing projects of this type be provided by the Industrial Division of the Department of Indian Affairs and Northern Development.
4. Production can be expanded in the Lower Mackenzie Region through distribution of component parts to interested individuals working in their own homes. The establishment and operation of day nurseries in communities such as Tuktoyaktuk, Aklavik and Fort McPherson would enable more women to participate in the fur garment industries.

#### Tannery

1. Continued government investment in the development of a tannery in the Lower Mackenzie Region is dependent on the following factors.
  - a) Use of increasing quantities of local furs in the fur garment industries.
  - b) Success of the Reindeer Project and the availability of large quantities of reindeer hides.

It is assumed that physical difficulties encountered in the establishment of a tannery at Aklavik can be overcome as part of the current government program to improve conditions in Aklavik.



### Adult Education

Adult education programs must be geared to meet the specific needs of different groups in the communities of the Lower Mackenzie Region. For example, in Fort McPherson, the emphasis in adult education should be directed towards the development of a handicraft and fur garment industry and a co-operative. In Tuktoyaktuk, adult education programs should be directed towards co-operative development and the organization and operation of tourist and cannery projects. The development of a realistic adult education program is complex in a multi-faceted region such as the Lower Mackenzie Region.



## Appendix A

## CHEMICAL ANALYSIS OF SOME NORTHERN FOODS

## Nutrients per 100 gm. of Food

Food Items	Month	Moisture (gm.)	Ash (gm.)	Protein (gm.)	Fat (gm.)	Carbo- hydrate (gm.)	Cal- cium (mg.)	Vitamin A (I.U.)	Thiamine (ug.)	Ribo- flavin (ug.)	Vitamin C (mg.)
Fresh Mammals, fresh meat,											
Polar Bear	March	70.3	1.1	25.6	3.1	0.0	17	1,400	23	573	2
Fresh Caribou		70.6	1.1	26.7	1.2	0.4	28	Trace	167	509	2
Fresh Caribou	March	68.7	1.1	28.9	1.1	0.0	15	Trace	113	670	3
Fresh Caribou	March	70.8	1.5	26.6	1.2	0.0	10	Trace	186	772	4
Fresh Moose	March	72.4	1.0	25.5	1.1	0.0	16	1,000	21	365	4
Fresh Muskrat		73.4	1.1	22.4	1.3	0.0	25	2,820	90	372	5
Fresh Beaver	March	46.2	0.6	14.3	39.0	0.0	-	-	61	310	2
Seal	March	64.7	1.1	32.4	1.8	0.0	12	-	120	337	3
Fresh Muktuk,											
Hide	July	68.1	0.2	12.3	1.2	18.2	13	-	501	0	2
Dried Muskrat		33.3	2.1	28.4	36.2	0.0	130	4,170	41	535	6
Muktuk Blubber		9.5	0.9	2.8	85.2	1.7	15	278	243	-	-
Dried Pike	June	22.6	3.9	68.7	2.8	2.0	32	-	51	98	4
Dried White Fish		18.0	5.7	69.0	3.2	0.9	960	-	51	112	15
Lush Fish											
Liver		45.9	0.5	5.6	42.0	6.0	-	3,940	-	-	4



<u>Food Items</u>	<u>Month</u>	<u>Moisture (gm.)</u>	<u>Ash (gm.)</u>	<u>Protein (gm.)</u>	<u>Fat (gm.)</u>	<u>Carbo- hydrate (gm.)</u>	<u>Cal- cium (mg.)</u>	<u>Vitamin A (I.U.)</u>	<u>Thiamine (u.g.)</u>	<u>Ribo- flavin (ug.)</u>	<u>Vitamin C (mg.)</u>
Fresh White Fish		70.9	2.0	25.8	1.3	0.0	356	106	135	222	6
Fresh Lush Fish	March	74.2	1.0	24.2	0.7	0.0	81	101	167	380	5
Fresh Lush (Loche) Fish	April	78.7	1.1	19.7	0.5	0.0	20	Trace	74	74	3
Grayling		70.2	4.8	23.4	1.6	0.0	532	81	-	-	4
Birds											
Ptarmigan		71.2	1.7	25.7	1.4	0.0	351	Trace	71	229	7
Eider Duck	July	68.3	1.1	12.3	1.1	17.2	17	-	801	676	12
Goose		71.5	2.0	24.0	0.6	0.0	18	-	89	545	5
Flowering Plants											
Salmonberries		83.5	0.4	1.6	0.4	14.1	13	302	30	70	115

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